Maine Farm-based Renewable Energy "First-Steps"

Harvesting Clean Energy Maine Rural Partners

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The following general guidance is offered for anyone considering investing in a farm-based renewable energy project that will serve on-farm needs in whole or in part.

1. Determine your farm's energy needs and maximize your efficiencies.

The best way to determine your energy usage and efficiency opportunities is to hire a professional auditor with experience in farm applications to conduct a full audit. This will give you a picture of your energy consumption, your usage patterns, and the costs of running equipment. Most will also make specific recommendations as to how to make cost-effective changes that will reduce your consumption, and give you handy information on available state incentives and estimated payback time periods for re-couping your investments.

The Farm Energy Partners Network, organized by Maine Rural Partners, has developed a partnership with agricultural organizations and Efficiency Maine to deliver high-quality walk through energy audits of Maine farms that are ***available at no cost to the farmer*** thanks to federal grant programs. We suggest you begin here to explore all avenues for energy efficiency. You will receive payback calculations for each recommendation including any incentives available from the Efficiency Maine Program. For information on scheduling an audit, contact AgMatters at 873-2108 or email cleanenergy@mainerural.org.

2. Target technologies to your match your needs.

For instance, do you need electricity, or more generally heat and/or cooling? How much do you need it, and at what time during the day, evening, or season? Investing in renewable energy to offset your current needs can be expensive, and you want to make sure that you choose a system that is right for your needs. For example, if you use a lot of electricity to heat water to sterilize your milking equipment, you may want to consider a solar thermal system to pre-heat your water. If you have high electricity usage and a windy site, you may want to consider a wind generator.

3. Evaluate the basics of your site for renewable potential.

Solar (heating and/or electricity): With typical open fields and large, slanted barn roofs, most farms in Maine will be suitable for solar thermal (heat) or solar photovoltaic (electricity) systems. The best locations are on south-facing roofs that get over 6-8 hours of sunlight on average and that are close to the usage point or building that will use the electricity or heat.

Wind (electricity): While many farms will not have the best sites in Maine because of the lack of elevation, most will likely support small-scale wind turbines (such as those under 10 kw). Check your location's estimated wind speeds at: http://truewind.teamcamelot.com/ne/information.html. Some of the newer wind turbines are now running well at average annual wind speeds as low as 4.5 meters per second (10 mph). Small-scale wind turbines typically do not need pre-testing of actual wind data (anemometers) before sizing and choosing wind turbine equipment. The better sites will have at least ½ acre of open land, with no nearby trees or other obstructions. Check to be sure that your local zoning laws allow for tall structures. For more information, you may also want to read "Small Wind Electric Systems: A Maine Consumers Guide" that can be found at: http://www.eere.energy.gov/windandhydro/windpoweringamerica/pdfs/small_wind/small_wind_me.pdf.

Geothermal (heating): Maine is considered to have low to moderate geothermal potential, compared to other states. While it is considered more expensive than solar or wind, geothermal may be your best option based on your site and your heating needs. Depending on load, you will need adequate space around and in your building to bury piping and locate pumping equipment.

4. Talk with vendors and others who have installed renewable technology.

Information regarding renewable energy equipment can be very site dependent. After you've determined your interest in exploring renewable energy, your best bet is to call one or more vendors to schedule a site visit and to further discuss your options. They can help you design and size your project in a way that fits your needs and budget.

Sample questions to ask a vendor include:

- *How many installations have you designed in Maine? Installed?*
- *Can you provide a list of installations and their owners that that I could talk to, or visit?*
- *Do you warranty your work? For how long and under what terms?*
- *Do you provide maintenance and service for the equipment?*
- *For solar, are you a qualified and certified installer in the State of Maine?*
- *Are you familiar with net metering in Maine and could you assist in making arrangements for that with the State and/or local transmission company?* (this is pertinent when a project provides excess generation at some time during year)
- *Are you familiar with federal and/or state incentives and would you assist in preparing applications for tax credits, rebates, grants and/or loans?*
- *Do you allow payment via payment plans or other arrangements for spreading out the costs over time?*

For a list of Maine renewable energy vendors visit www.mainerural.org or refer to the most recent Maine Rural Partners Farm Energy Field Guide.

Please Share Your Experience!

We are learning together from those farmers who are taking early initiatives and are willing to share their experiences. MRP's Farm Energy Partners Network is a vehicle for gathering and sharing so that we can move forward as a more prosperous and environmentally sound community. If you are willing to share your experience, please contact AgMatters at 873-2108 or cleanenergy@mainerural.org.

For more guidance on developing a commercial-scale renewable energy project, contact Sue Jones of Community Energy Partners at 207-221-5639 or www.communityenergypartners.com.

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