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Maine Rural Partners
Listen. Connect. Create.

Renewable Energy Assessment Guide

Harvesting Clean Energy:
Maine Farm-based Renewable Energy "First-Steps"

If you want to install a renewable energy system on your Maine farm? The following set of ***basic and general*** considerations is offered as you consider investing in a farm-based renewable energy project that will serve your on-farm needs, in whole or in part. This is not intended to answer all of your questions, but rather is meant to help you make your "first steps" in your decision-making process. This is also not intended to guide you in developing a commercial-scale project.[1] To start, you want to ask yourself the following questions:

1. Have you determined your farm's energy needs, and maximized your farm's efficiencies – in the buildings, processing and in equipment?

The best way to determine this 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 Serena Bemis-Goodall at 581-1648.

[1] 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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2. Have you analyzed your electricity load?

For instance, do you need electricity and/or heat? 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 chose 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. Have you analyzed your site and location?

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. Have you talked with vendors?

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 a local expert 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?*

See the next page for a list of Renewable Energy Vendors in Maine as of January 2008 that you might call for more specific advice.

Maine Rural Partners would like to assist in collecting and disseminating renewable energy experience. If you are willing to share your experience, please contact Serena Bemis-Goodall at 591-1648 or cleanenergy@mainerural.org.

This factsheet was prepared by Maine Rural Partners (MRP) with funding provided by the USDA Risk Management Agency. MRP coordinates the Farm Energy Partners Network (FEPN), which aims to deliver high-quality energy savings to Maine farmers and agricultural producers. For more information about MRP and FEPN, see http://www.mainerural.org/networks/farmenergy.php.

Maine Renewable Energy Vendors

January 2008

KEY: "w" = wind vendor, "s" = solar vendor, "g" = geothermal vendor

Ascendant Energy (s)
Attn: Kurt Penney
313 Maine Street, Suite 204
Rockland, ME 04841
207-594-6303
www.ascendantenergy.com

All Season Home Improvement, *2 locations* (w)
Attn: Bob Greig
823 Church Hill Road
Augusta, ME 04330
800-464-3039 or 800-464-3039
www.all-season.com

Attn: Bob Greig
115 Sherwood Street
Portland, ME 04103
207-242-0256

Clover Hill Wind & Sun Inc (w, s)
366 Town Farm Road
Lincoln, ME 04457
207-794-3103
sunandwind@midmaine.com

Energyworks, *2 locations* (w, s)
Attn: Bill Behrens
91 West Main Street
Liberty, ME 04949
877-369-6757
www.greenstore.com

Attn: Fortunat Mueller
109 Fox Street
Portland, Maine 04101
207-221-6342

Geothermal Maine (g)
Attn: Heidi Watson
1587 U.S. Highway 1
Littleton , ME 04730
207-538-9347
www.geothermalmaine.com

Green Earth Energy (w, s)
Attn: Michael Paradis
13 Hall Street
Fort Kent, ME 04743

Green Ridge Wind Farms (w)
Attn: Stephen Hallee
212 Searsport Avenue
Belfast, ME 4915
207-272-7905
207-338-9911
www.greenridgewindfarms.com

J. Huntley Plumbing & Heating (w)
Attn: Jeff Huntley
50 Dublin Street
Machias, ME 04654
207-255-8033
www.jlhuntley.com

Solar Market (s)
Attn: Naoto Inoue
25 Limerick Road
Arundel, ME 04046
1-877-785-0088
www.solarmarket.com

Solar Tech Inc. (w, s)
Attn: Bob Hussey
50 Eustis Parkway
Waterville, ME 04901
207-872-4531
solartechinc@yahoo.com