



Farming and Energy Use Series

Finding Hidden Opportunities for Energy Savings

Lowering your utility and fuel bills by reducing your energy use is like getting free money.

Several types of technical assistance are available to help Pennsylvania farmers uncover hidden potential energy savings, while maintaining or even improving operations:

1. Professional analysis of your utility bills—the simplest and the one many farmers start with;
2. Walk-through energy assessment—focused on specific equipment or processes; and
3. In-depth energy audit of the entire farm.

The three levels of energy use analysis differ in how much commitment from you is needed, the degree of detail the service provides, and the cost. Decide the level you're comfortable with, and then get on the hunt for future energy savings!

Utility Bill Analysis

What's included: Typically, a professional reviews 12 months of your utility bills to ensure that all taxes and fees are correct, and identify the components of your bills, which can sometimes be confusing. Fluctuations in energy use due to seasonal changes and other factors are also reviewed. An analysis will also help determine whether switching to a different electric supplier can save you money.

Who can help: Penn State Extension: <https://extension.psu.edu/contacts> or (877) 345-0691.

Walk-through Energy Assessment

What's included: An assessment usually takes a few hours and focuses on specific equipment or processes, rather than overall energy use on the entire farm. The assessor uses a checklist to review your energy-using equipment or processes and your utility bills. The assessor gives you a report suggesting ways to improve your energy efficiency, and anticipated related up-front costs, with an estimated return on investment to help you prioritize which upgrades to undertake first. An assessment can also examine the feasibility of installing renewable energy technologies, such as rooftop solar panels.

Free or reduced-cost energy assessment providers

Available statewide:

ETAC at Northampton Community College

- Free
- Website: <https://www.northampton.edu/noncredit/center-for-business-and-industry/technical-trades-and-computer-training/emerging-technology-applications-center.htm>
- Contact: Cyoung@northampton.edu; (570) 327-4768



This heat exchanger at a dairy farm precools milk using well water. It's just one of many energy efficient measures an assessor might recommend. (Photo courtesy of Penn State Extension.)

Did you know?

Most farms reduce their energy use 10-35 percent through energy efficiency measures.

Source: DEP, "Energy Use, Energy Savings, and Energy Efficiency Policy Recommendations for Pennsylvania Agriculture," 2020

Want more information?

Contact:

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pennsylvania
DEPARTMENT OF ENVIRONMENTAL
PROTECTION

PennTAP at Penn State University

- Free
- Website: <https://penntap.psu.edu/>
- Contact: penntap@psu.edu; (814) 865-0427

Available in Central Pennsylvania:

NSSC at Penn College

- Reduced cost
- Website: <https://www.pct.edu/business/national-sustainable-structures-center>
- Contact: nssc@pct.edu; (570) 327-4768

Available in Southcentral Pennsylvania:

Institute for Energy at St. Francis University

- Free
- Website: <https://www.francis.edu/institute-for-energy/>
- Contact: energy@francis.edu; (814) 472-2872

In-Depth Energy Audit

Set aside whatever negative connotation you may associate with the word “audit.” **An energy audit is a good thing.**

What's included: Most farms use multiple forms of energy, such as diesel, electricity, fuel oil, propane, and wood. On-farm energy auditors will examine, usually over the course of a few days, overall energy use on the entire farm. They'll pinpoint where you're losing energy and evaluate how to fix the problem.

Following guidance from the American Society of Agricultural and Biological Engineers Standard S612, here's what an energy auditor is likely to do:

- Measure your farm's energy use with an infrared thermometer, power analyzer, and other instruments.
- Collect a year or more of utility and fuel bills.
- Inventory all equipment that uses energy, including data plate information.
- Interview personnel about equipment operating hours.
- Analyze energy use to identify how to be more energy efficient.
- Evaluate any opportunities to install onsite energy generation which uses any fuel you get for free such as: sunlight, biomass, manure, and wind.
- Determine upgrade costs and estimated return on investment to help you prioritize which upgrades to invest in first.

Reduced-Cost Energy Audit Providers

Available Statewide:

EQIP at Natural Resources Conservation Service

- Website: <https://www.nrcs.usda.gov/wps/portal/nrcs/main/pa/energy/>
- Contact: peter.vanderstappen@usda.gov; (717) 237-2228

Often available in electric utility areas:

- Website: <https://www.puc.pa.gov/electricity/electric-companies-suppliers/>

In addition, many agriculture consulting companies offer energy audits at a cost. These services typically pay for themselves in a short period of time with the money saved on energy costs.

An Energy Assessment in Action

PennTAP recently did an energy assessment for a Pennsylvania farm that raises dairy cattle and grows corn and soybeans.

The assessment focused on the farm's grain dryer and provided recommendations to replace it with a more energy efficient in-bin grain dryer. This replacement brought the farm electric and propane savings of over \$1,300 per year!



PennTAP also recommended upgrading the lighting to LED bulbs and replacing the livestock fan blades with carbon fiber blades. If implemented, this change will result in additional savings of nearly \$1,500 per year.

In addition to conducting energy assessments, PennTAP staff are also able to assist with funding applications.

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