



Metered energy analyses: Getting baseline data, ground-truthing changes

Abstract: The Farm Metered Energy Analysis project was conducted to help farmers learn about their energy use patterns. The metered energy data was reported to the farmers in a variety of formats such as average monthly kWh usage by type of fuel, average cost of energy per kWh over time, etc.

Investigator:

Teresa Opheim
Practical Farmers of Iowa
Ames, Iowa

After collecting metered energy data for 14 farms, it became clear that walk-in coolers are responsible for a large portion of the electricity bill for many fruit and vegetable farms. Once this “energy hog” was identified, PFI worked with farmers to make their existing coolers more energy efficient and build conservation into the construction of new walk-in coolers.

What was done and why?

Before they can tackle fossil fuel dependency, farmers must understand their baseline energy use, costs and environmental impact. In addition, there are few farmers who have verified energy efficiency practices, or “ground-truthed” promised “pay-back times” and energy production estimates for alternative energy systems. This corroboration is crucial if more farmers are to be convinced to undertake on-farm energy-saving projects.

The objectives for this project were:

1. Through farm metered energy analyses, 25 farmers will understand their energy use, costs and environmental impacts, both before and after taking energy efficiency and renewable energy steps.
2. Two hundred other farmers will consider their own energy use and potential energy savings after learning from PFI farmer leaders.
3. Project results will be shared with 120,000 Iowans through both the farm and general press and these individuals will begin to consider energy efficiency a priority.

What did we learn?

The cooler analysis has been especially provocative, prompting farmers who were purchasing, building or retrofitting their coolers to ask more questions about their energy efficiency. To harness the knowledge gained from new coolers being built, three farmers are documenting their building process, including labor time, materials cost and blueprints to share on the PFI website.

Farmers also have shown more interest in data-logging their energy consumption on various equipment to identify areas of improvement (low-hanging fruit), and continue to ask for more information about on-farm production of renewable energy. Several farms were identified as “energy showcase farms” because of their enthusiasm for energy recordkeeping and dedication to on-farm energy conservation and renewables.