



Ag Decision Maker

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Payback for energy-related farm projects

by Dana Petersen, Farm Energy Conservation and Efficiency Initiative, 515-294-5233, petersen@iastate.edu; Mark Hanna, extension engineer, 515-294-0468, hmhanna@iastate.edu

As spring draws near, energy prices are creeping upward. This is a great time to prepare for spring projects – especially ones that can help you reduce energy consumption around the farm.

Whether your plans include new construction, replacing motors or equipment, or upgrading lighting systems, now is the time to make decisions about where to reinvest your farm business dollars. Safeguarding yourself against rising energy prices can start with comparing the simple payback for energy-related farm projects.

“Saving money today by purchasing equipment with a lower initial cost—and higher energy demands—puts the buyer at risk when energy prices rise in the future,” says Mark Hanna, ISU Extension ag engineer. “This can potentially negate the savings associated with the low purchase price.”

Calculating the simple payback period for a purchase means dividing the initial cost by the projected annual energy savings. For example, if the cost for new equipment is \$3600 and the projected annual energy savings at current energy prices is \$900, the initial cost is repaid through energy savings after four years (\$3600/\$900).

Simple payback is typically helpful for comparing purchases with relatively short payback periods. However, this method does not

account for continued energy savings (return on investment) after a project reaches its break-even point. To do this, you need reliable information about the equipment’s useful life. Some examples that illustrate the benefits and limitations of the simple payback method are available in the latest ISU Farm Energy fact sheet, “Estimating payback for energy efficiency” (PM 2089S) at farmenergy.exnet.iastate.edu.

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Handbook updates
For those of you subscribing to the handbook, the following new updates are included.

- Historical Costs of Crop Production** -- A1-21 (2 pages)
- Historic Iowa Farm Custom Rate Survey** -- A3-12 (3 pages)
- Historic County Farmland Values** -- C2-72 (10 pages)

Please add these files to your handbook and remove the out-of-date material.

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Lighting

Initial cost to replace bulbs in a livestock facility is \$400, but the projected annual electrical savings is \$2000. The simple payback period is 0.2 years (= \$400/\$2000) with a savings of \$1600 in year one and \$2000 in year two. Estimated bulb life for the project is two years, so return on investment is \$3600 over two years. Extra labor costs may be incurred to make the switch to new light bulbs or fixtures, but consider if the energy savings from the upgraded, energy efficient lighting will cover labor and installation costs.

10 horsepower electric motor

A 10 horsepower (hp) electric motor is being used 10 hours per week to grind feed. A new replacement motor is estimated to save one kWh of energy during each hour of operation, saving ten kWh each week or 520 kWh annually. Assuming electricity costs \$0.10 per kWh, annual cost savings are \$52. If replacement cost for a 10 hp motor is \$1000 on average, the simple payback is 19.2 years (= \$1000/\$52). Therefore, if economics are the only factor considered, replacement would most likely be delayed until near the end of the motor's useful life.

Pick-up truck

The existing farm truck has an estimated fuel efficiency of 15 mpg, but a late-model truck gets an estimated 25 mpg and is available for \$15,000 plus trade-in. Assuming 18,000 annual mileage, the newer truck would consume 720 gallons (= 18,000/25) of fuel versus 1200 gallons (= 18,000/15) for the existing truck. At fuel prices of \$3.00/gal, the extra 480 gallons of fuel conserved equals \$1440 annually. The simple payback period is 10.4 years (= \$15,000/\$1440). However, at increased fuel costs of \$4.00/gal, the simple payback is 7.8 years (= \$15,000/\$1920).

As illustrated, simple payback is helpful for estimating how long it will take to recoup your investment, but it doesn't show a project's profitability. When only energy costs are considered, purchases with a long payback may not pay for themselves until they're nearly worn out. Unless your goal is to quickly recoup invested funds and put them to work again, look beyond the simple payback. Consider the variable cost, total cost, useful life, maintenance and energy savings of a purchase to determine if it's a wise investment.



Proposed regulations recognize uniqueness of LLCs and other pass through entities: passive loss rules relaxed

by Neil E. Harl, Charles F. Curtiss Distinguished Professor in Agriculture and Emeritus Professor of Economics, Iowa State University, Ames, Iowa. Member of the Iowa Bar, 515-294-6354, harl@iastate.edu

The decade-long battle to establish that members of limited liability companies, limited liability partnerships and other pass-through entities are not mirror images of limited partners in a limited partnership for passive activity loss purposes reached a new level on Nov. 28, 2011. On that date, the Department of the Treasury issued proposed regulations agreeing that members of LLCs and LLPs should not be treated the same as limited partners for passive activity loss purposes. That shift in authority is immensely important to members of LLCs and LLPs.

History of the controversy

The Internal Revenue Service (and the Department of the Treasury) started off the controversy in temporary regulations issued in 1988 by defining limited partnerships for passive activity loss purposes narrowly in allowing only three of the seven tests for material participation on a "regular, continuous and substantial basis" to be used for limited partnerships. Those tests were – (1) where the limited partner participates for more than 500 hours; (2) where the limited partner materially participated for five or more of the ten preceding years; or (3) the activity