

Farm Energy IQ



Energy Efficiency for Direct Farm Markets –ASP Presentation Outline

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Slide 1-3 Title and introduction

Slide 4 Not only do direct market operations differ widely in the forms of marketing, but an individual farm may engage in several different types of direct sales as well as serving wholesale markets. Each approach has its own energy issues, so improving energy use typically requires solutions tailored to the specific operation.

Slide 5-6 Typically, direct market farming operations are inherently less energy efficient than larger, wholesale farms. Part of this inefficiency is attributable to economies of scale. A diversified, smaller farm has fewer options for optimizing energy performance (centralized cooling and heating facilities, for example). A farm that produces many different products has more complex needs for storage, processing, material handling and transportation. This complexity often translates into more, smaller energy using devices (smaller trucks, multiple small coolers, hoop greenhouses) that are not as efficient as larger systems.

Slide 7 Advanced GPS not only provides directions to a destination but can adjust the route according to traffic conditions and minimize the number of left turns required.

Route optimization and scheduling is fairly complex, and computerized optimization schemes may be beyond the resources of many direct market farms. Nonetheless, consideration of routes and scheduling to reduce miles traveled and time spent can provide significant cost savings.

Improved vehicle performance (aerodynamics, tires, fuels) may be an option with an existing vehicle and should also be considered whenever purchasing a new vehicle.

Slide 8 Newer lighting technologies present energy savings opportunities as well as additional considerations when replacing lights or installing new fixtures. Initial cost, Color rendering, light temperature, lumen depreciation and cold weather performance are all factors that can influence lamp selection. Improving lighting efficiency should focus on high use areas.

- Slide 9-11 Air conditioners and walk-in coolers. The defrost cycles for cooling and refrigeration equipment should be adjusted to meet the systems needs.
- Sensors should be calibrated or checked annually or seasonally or more frequently for high humidity or dirty environments. Sensors should be kept clean.
- Sensors should measure conditions at a location that is representative of the space. This means that the height and position should correspond to the area where cooling is desired (for example, 3 to 5 feet high for human occupants). Sensors should not be in direct sunlight, near heat sources and either aspirated or well ventilated.
- Failure of cooling or ventilating equipment can be disastrous in agricultural operations. The safeguard of providing alarms for high or low temperatures is well worth the effort involved in setting up an alarm system.
- Slide 12 Some cooking equipment comes with ENERGY STAR ratings. For exhaust hoods in conditioned spaces, energy recovery can reduce energy use significantly. Variable Frequency Drive controllers may improve vacuum pump performance. For motorized equipment, use efficient motors. For larger motors (more than 1 hp), where three phase power is available, three phase motors can be more efficient.
- Slide 13 Tips for motor efficiency
- Slide 14 Tips for pump efficiency
- Slide 15 Tips for air compressor efficiency
- Slide 16 Retail energy consumption considerations
- Slide 17 Greenhouse energy efficiency overview
- Slide 18 Questions?

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