

# WVU POLLUTION PREVENTION NEWSLETTER

**FEBRUARY 2026**

Welcome to this edition of the WVU Pollution Prevention Newsletter. This issue highlights practical, high-impact ways poultry producers can cut energy costs while maintaining flock health and house performance. Because heating and ventilation typically dominate poultry energy use, small improvements in fan efficiency, motor controls, and air sealing can deliver meaningful savings. We also summarize fast-payback opportunities such as dimmable LED lighting upgrades, high-efficiency motors with VFDs, routine fan maintenance, and operational strategies that reduce peak demand charges. Seasonal operating differences are emphasized to help producers prioritize upgrades for winter heating loads and summer ventilation-driven electricity use.

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# WHAT IS POLLUTION PREVENTION



**Pollution Prevention (P2)** is one of the key approaches towards an initiative to improve the energy efficiency and productivity of key industries while prioritizing environmental sustainability. The initiative focuses on reducing or preventing pollution at its source.

The primary objective of our Pollution Prevention program is to provide technical assistance to Small and Medium Enterprises in **key industries** in West Virginia by assisting with the identification, development, and implementation of P2 methods. The recommendations provided to the industries are designed to help the business lower operational costs by reducing expenditures, water and energy usage, waste, and disposal costs, while at the same time maintaining and often improving productivity.

## **Key Industries:**

1. Food and Beverage Manufacturing and Processing
2. Chemical Manufacturing, Processing, and Formulation
3. Automotive Manufacturing and Maintenance
4. Aerospace Product and Parts Manufacturing and Maintenance
5. Metal Manufacturing and Fabrication

## OUR SERVICES

1. **Pollution Prevention Assessments:** The project team will make a planned visit to your facility to assess and gather data on energy, water, material, and personnel use. Assessment data, along with input from the facility managers, will be used to develop P2 recommendations. A detailed report based on the findings will be submitted to the facility shortly after the on-site assessment.
2. **Energy Audits/Assessments:** Applying for a USDA-REAP grant and need an assessment? Want to save money? The project team will visit your facility and identify opportunities to improve energy efficiency. A detailed report will be provided to the business, including estimates of implementation costs, energy use savings, energy cost savings, and simple payback period for each identified opportunity.
3. **Training Workshops:** Training workshops will be conducted to help businesses learn P2 Best Practices, tools, techniques, and resources available, and how to modify their process or site to improve energy efficiency, productivity, and environmental sustainability.
4. **Technical Assistance:** The project team can provide on-site or off-site technical assistance on a variety of industrial concerns related to topics including pollution prevention, energy efficiency, sustainability, environmental impact, and process improvement. Contact us for assistance!
5. **USDA-REAP Application Assistance:** Applying for grant funding can be a challenge, especially for the small businesses that do not have an expert at grant-writing on the payroll. Our project team can help you navigate the application process and assist with completing the application for USDA-REAP funding.

# POLLUTION PREVENTION FOCUS

## OPTIMIZING ENERGY USE IN POULTRY HOUSES: PRACTICAL STRATEGIES FOR PRODUCERS

Energy is one of the top operating costs for poultry growers, making efficiency improvements essential for long-term sustainability and profitability. The WVU Pollution Prevention (P2) Team recently presented key strategies for reducing energy consumption in poultry houses, focusing on heating, ventilation, lighting, and motor systems that offer the greatest potential for savings.

### Understanding Energy Profile

Heating and ventilation dominate energy use in poultry operations, accounting for [nearly 90%](#) of total energy consumption. Heating demands rise sharply in colder months, while ventilation becomes the primary driver of electricity costs during summer. These seasonal patterns make targeted upgrades especially valuable.

### Where Energy Inefficiencies Occur

A poultry house must maintain a stable microclimate from chick arrival to harvest, and that stability carries energy challenges:

- **Continuous ventilation** is essential for air quality but can become costly if fans are inefficient or the building leaks air.
- **Energy use increases as birds grow**, requiring regular adjustments to airflow and temperature.
- **Seasonal impacts:** winter increases heating costs while summer multiplies fan usage fourfold.
- **Biosecurity constraints** limit low-tech ventilation strategies like opening doors or windows.

### Best High-Impact Practices

#### 1. Upgrade Lighting Systems

Lighting typically represents only 3-10% of electricity usage, but it offers one of the fastest paybacks. Modern **dimnable LED systems** can cut lighting energy by [75-85%](#), reduce stress on birds, and last 25x longer than incandescent bulbs.

Key actions include:

- Switching to [dimnable LED fixtures](#)
- Choosing [appropriate color temperatures](#) (5,000K for natural daylight simulation)
- Installing [automation and daylight sensors](#)
- Using [poultry-grade sealed fixtures](#) to withstand humidity and dust

#### 2. Efficient Motors & Ventilation

Ventilation fans use 70–90% of a poultry house’s electricity. Upgrading to IE3/IE4 high-efficiency motors and installing [Variable Frequency Drives \(VFDs\)](#) can reduce fan energy use by [30–50%](#). VFDs allow fan speeds to adjust gradually and precisely, improving temperature and humidity control while decreasing mechanical wear. Routine maintenance like cleaning blades, checking belt tension, and lubricating bearings prevents avoidable energy loss.

#### 3. Energy Accounting & Cost Drivers

Electric bills reflect not only kWh consumed but also peak demand charges, based on the highest 15-minute period of electricity use. In some cases, peak demand accounts for nearly half of a farm’s monthly bill. Staggering fan operation, optimizing ventilation schedules, and using VFDs can significantly reduce these peaks. [Heating fuels \(propane or natural gas\) make up 50–70% of total energy](#) costs, underscoring the importance of good insulation and air sealing.

#### 4. Seasonal Trends

Winter flocks require more fuel due to heating needs but have relatively low electrical costs. Summer flocks may see 4x higher electricity usage, driven by nonstop ventilation. Understanding these seasonal differences helps producers plan upgrades that minimize both fuel and electrical expenses.

To learn more about these strategies, visit our webinar: [Optimizing Energy Usage in Poultry Houses](#).

# HIGHLIGHTING OUR IMPACT

The WVU Pollution Prevention (P2) team takes great pride in the impact we have within the borders of West Virginia since January of 2023. From energy savings to CO<sub>2</sub> reduction, the recommendations we develop for these businesses not only help these businesses improve their sustainability, but also their bottom line!

**Look at the impact of the opportunities we have found! →**

**35** Energy Efficiency/P2 Assessments

**89** Recommendations

**With Annual Savings of...**

**\$957,893** in Energy Costs

**7,345 MWh** of Electricity

**18,150 MMBtu** of Natural Gas

**5,933 Metric Ton** CO<sub>2</sub> Equivalent

## CONTACT US

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**P2 Website**



**Inquire about or services**



**Questions or Comments?**