# 45+ YEARS OF PROVEN EXCELLENCE: REAL WORLD STUDIES AND RESULTS IN ENERGY & COOLING EFFICIENCY





30 International Case Studies Global Community

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# Case Study Catalog: Real-World Results

For over 45 years, the innovative oil technology showcased in this catalog has played a transformative role in optimizing HVAC and refrigeration systems across diverse industries. From automotive manufacturing to food processing, pharmaceuticals, hospitality, agriculture, and beyond, these case studies highlight its versatility and broad-reaching impact. Recognized by companies such as **Honda, Bosch, Kansai Nerolac, Swift Foods, Green Harvest Farms, and the Premier Hotel Group**, the product has demonstrated measurable results in energy savings, operational reliability, and system longevity.



## Unseen Benefits That Emerge Over Time

While we rely on third-party organizations to independently verify the specific data reported in each case, the recurring performance benefits observed across industries speak to the technology's unique formulation. These benefits, which are supported by scientific principles and real-world application, include:

- **Anti-Wear Additives**: Reducing friction and extending the lifespan of mechanical components such as compressors.
- **Oxidation Inhibitors**: Preventing degradation of oils, ensuring stable and reliable system operation.
- **Corrosion Inhibitors**: Protecting metal surfaces from damage, enhancing durability and performance.
- **Surfactant Agents**: Improving heat transfer efficiency and overall cooling performance.
- **Conditioners**: Preserving the functionality of key system components for sustained operation.

# What Immediate Benefits Emerge from These Case Studies?

While many of the unseen benefits reflect the advanced chemistry behind the oil technology, these case studies illustrate its real-world, measurable effects across diverse industries. These observed benefits include:

#### • Energy Savings:

Achieved reductions in energy consumption ranging from **6% to 12%**, with some facilities reporting up to **30% improvements** during testing. These savings reduce operational costs and contribute to long-term profitability.

#### • Enhanced Cooling Reliability:

Improved system performance ensures consistent cooling capacity, critical for maintaining optimal temperatures in industries like food processing, pharmaceuticals, and recreation.

#### • Reduced Maintenance Needs:

Fewer system breakdowns, minimized wear on components like compressors, and lower need for emergency repairs significantly cut annual maintenance budgets.

#### • Extended Equipment Lifespan:

Systems optimized with the oil technology last longer, delaying expensive replacements and ensuring sustained reliability in high-demand environments.

#### Improved Operational Efficiency:

Enhanced heat transfer capabilities and reduced strain on mechanical systems boost overall equipment productivity while lowering energy usage.

#### • Lower Environmental Impact:

By reducing energy consumption, the technology contributes to lower carbon emissions, helping industries align with sustainability goals and regulatory requirements.

#### • Increased Net Operating Income (NOI):

The combination of energy savings, reduced maintenance, and extended equipment lifespans leads to measurable NOI improvements, showcasing the technology as a strategic financial investment.

Across decades of implementation, this technology has proven itself as an adaptable solution that evolves with industry demands. Its application in high-energy-use environments, including industrial chillers, centralized HVAC systems, and precision cooling units, exemplifies its scalability and reliability in addressing both common and complex challenges.

As we delve into the detailed case studies that follow, you'll find evidence of consistent energy efficiency improvements, enhanced cooling reliability, and financial benefits that extend beyond direct cost savings. Together, these findings present a compelling narrative of a solution that continues to redefine performance standards across industries worldwide.

## Case Study 1: Honda – Energy Savings & Cooling Performance

#### **Improvement**

Industry: Automotive & Manufacturing

Facility: Honda Motorcycle & Scooter India Pvt. Ltd.

Tested Systems: Multiple Ductable Split ACs & VRV/VRF systems

Energy Savings Achieved: Above 9.2% average reduction in energy consumption

**Performance Outcome:** Improved cooling performance, reduced compressor noise & vibration

#### **Conclusion:**

Honda conducted real-world testing with **our innovative oil technology**, achieving above **9.2% energy savings** across **Multiple Ductable Split ACs & VRV/VRF systems**. The results confirmed **enhanced cooling efficiency**, along with noticeable reductions in **compressor noise and vibration**.

This study reinforces **our oil's effectiveness** in **large-scale commercial and industrial environments**, proving measurable efficiency improvements and operational benefits

## Case Study 2: Bosch – Industrial Chiller Optimization & Energy Reduction

Industry: Industrial Manufacturing & Technology

Facility: Bosch Limited

Tested System: 600 Tr McQuay Centrifugal Chiller

Energy Savings Achieved: Average of 9.8% reduction in energy consumption

Performance Outcome: Improved cooling efficiency and operational reliability

**Conclusion:** 

Bosch Limited tested **our innovative oil technology** in their **600 Tr McQuay Centrifugal Chiller** and achieved an average **energy savings of 9.8%**, along with **improved cooling performance and operational reliability**.

This case study highlights **our oil's ability** to deliver **measurable efficiency improvements** in **large-scale industrial cooling systems**, reinforcing its impact in reducing **energy costs** and optimizing equipment performance.

## Case Study 3: Kansai Nerolac – TRANE Screw Chiller Efficiency

## Enhancement

Industry: Paints & Chemicals Manufacturing

Facility: Kansai Nerolac Paints Ltd.

Tested System: 350 TR Trane Screw Chiller

#### Energy Savings Achieved: 12% reduction in specific energy consumption

**Performance Outcome:** Improved cooling performance, reduced compressor noise & vibration levels

#### **Conclusion:**

Kansai Nerolac Paints Ltd. tested **our innovative oil technology** in their **350 TR Trane Screw Chiller**, achieving approximately **12% energy savings**. The results also demonstrated **enhanced cooling efficiency**, along with significant reductions in **compressor noise and vibration levels**.

This study reinforces **our oil's effectiveness** in **large-scale industrial cooling systems**, proving measurable efficiency gains and operational benefits in **high-energy-use environments**.

# <u>Case Study 4: PT Indo Bharat Rayon – Textile Manufacturing Chiller</u> <u>Optimization</u>

Industry: Textile & Rayon Manufacturing

Facility: PT Indo Bharat Rayon (Aditya Birla Group)

Tested System: Chiller No. 2 & Chiller No. 5

Energy Savings Achieved: 6.5% – 7% reduction in specific energy consumption

Performance Outcome: Verified overall energy savings improvement

#### **Conclusion:**

PT Indo Bharat Rayon tested **our innovative oil technology** in its **industrial chiller system** and recorded **measurable efficiency improvements**. The results demonstrated a **6.5%** – **7% reduction in specific energy consumption**, validating the technology's ability to **optimize cooling systems and reduce operating costs** in **high-load industrial environments**.

This case study reinforces the effectiveness of **our energy-saving solution** in **large-scale textile manufacturing**, providing **tangible performance gains** while **enhancing overall system reliability**.

## Case Study 5: Automotive Manufacturing Facility – HVAC Optimization

Industry: Automotive Manufacturing

Facility: Major Automotive Manufacturing Facility

Tested System: HVAC units (Ductable Split Systems)

#### Energy Savings Achieved: Over 10% improvement in energy efficiency

**Performance Outcome:** Enhanced cooling performance, extended equipment lifespan, and reduced operating noise

#### **Conclusion:**

The automotive manufacturing facility tested our **innovative oil additive** in its **ductable split HVAC systems**, achieving over **10% energy efficiency improvement**. The systems also exhibited **enhanced cooling performance**, **lower energy consumption**, **and reduced operating noise**, contributing to improved workplace conditions and cost savings.

This study highlights the oil's ability to deliver **consistent energy optimization** in **highdemand manufacturing environments**, reinforcing its credibility in the automotive industry.

## Case Study 6: Rockwell Automation - Precision Cooling Optimization

Industry: Technology & Electronics Manufacturing

Facility: Rockwell Automation

Tested System: Precision cooling systems for manufacturing equipment

Energy Savings Achieved: 8.5% reduction in energy consumption

Performance Outcome: Enhanced cooling reliability and operational efficiency

#### **Conclusion:**

Rockwell Automation utilized **our innovative oil technology** in its **precision cooling systems**, achieving an **8.5% reduction in energy consumption**. The technology improved **cooling reliability**, ensuring stable operation of critical manufacturing equipment while reducing overall operating costs.

This case study highlights the ability of **our energy-saving solution** to optimize **precision cooling systems** in demanding industrial environments, further solidifying its credibility in the electronics manufacturing sector.

# Case Study 7: Molex Inc.- Industrial Chiller Energy Savings

Industry: Electronics & Connector Manufacturing

Facility: Molex Inc.

Tested System: York Chiller Units

Energy Savings Achieved: 9% reduction in energy consumption

Performance Outcome: Improved system efficiency and reduced operational costs

#### **Conclusion:**

Molex Inc. utilized **our innovative oil technology** in their **York Chiller Units**, achieving a **9% reduction in energy consumption**. The technology also contributed to **improved system efficiency**, reducing operational costs while maintaining high performance standards in their manufacturing processes.

This study underscores the effectiveness of **our energy-saving solution** in optimizing **industrial chiller systems**, showcasing its adaptability and impact across diverse manufacturing sectors.

# <u>Case Study 8: Meat Processing - Refrigeration System Energy</u> Optimization

Industry: Meat Processing & Packaging

Facility: Colorado Meat Packers

Tested System: Industrial refrigeration systems

Energy Savings Achieved: 7.5% improvement in energy efficiency

Performance Outcome: Lower operational costs and improved refrigeration reliability

**Conclusion:** 

Colorado Meat Packers implemented **our innovative oil technology** in their **industrial refrigeration systems**, achieving a **7.5% improvement in energy efficiency**. This led to **lower operational costs**, while enhancing the reliability and performance of refrigeration equipment critical to their operations.

This case study highlights **our energy-saving solution's effectiveness** in the **meat processing industry**, showcasing its ability to deliver consistent results in high-demand environments.

Case Study 9: Convention Center - Split System Head Pressure Reduction

Industry: Convention & Event Facilities

Facility: 101 Convention Center

Tested System: Split system HVAC units

Energy Savings Achieved: 6% improvement in energy efficiency

**Performance Outcome:** Reduced head pressure and enhanced cooling capacity

**Conclusion:** 

The 101 Convention Center applied **our innovative oil technology** to their **split system HVAC units**, achieving a **6% improvement in energy efficiency**. The results included **reduced head pressure**, enhanced cooling capacity, and more reliable performance during high-demand periods.

This case study demonstrates **our energy-saving solution's ability** to optimize cooling systems in **large-scale event facilities**, contributing to improved operational efficiency and cost-effectiveness.

## Case Study 10: Cassidy's Ice - Industrial Refrigeration Efficiency

Industry: Ice Production & Distribution

Facility: Cassidy's Ice

Tested System: Ammonia-based industrial refrigeration system

Energy Savings Achieved: 11% improvement in energy efficiency

Performance Outcome: Enhanced system reliability and reduced operational costs

**Conclusion:** 

Cassidy's Ice integrated **our innovative oil technology** into their **ammonia-based industrial refrigeration system**, achieving an **11% improvement in energy efficiency**. This upgrade also enhanced system reliability, reduced maintenance needs, and lowered operational costs, critical to maintaining competitive operations in the ice production industry.

This case study underscores **our energy-saving solution's ability** to optimize **industrial refrigeration systems**, delivering consistent performance improvements in specialized environments.

# Case Study 11: Edge Ice Arena Ammonia Optimization

Industry: Recreation & Sports Facilities

Facility: Foothills Recreation Center – Edge Ice Arena

Tested System: Ammonia-based refrigeration system

Energy Savings Achieved: 10% improvement in energy efficiency

**Performance Outcome:** Optimized ammonia system performance and reduced operating costs

#### **Conclusion:**

Foothills Recreation Center's Edge Ice Arena incorporated **our innovative oil technology** into their **ammonia-based refrigeration system**, achieving a **10% improvement in energy efficiency**. The optimized system demonstrated enhanced performance, reduced maintenance requirements, and lower operating costs, ensuring reliable ice quality and facility operations.

This case study illustrates the value of **our energy-saving solution** in **sports and recreation facilities**, delivering consistent results in specialized, high-demand environments.

# <u>Case Study 12: Swift Foods - Freezer Temperature & Compressor</u> <u>Performance</u>

Industry: Food Processing & Distribution

Facility: Swift Foods

Tested System: Industrial freezer compressors

Energy Savings Achieved: 9.5% improvement in energy efficiency

Performance Outcome: Improved temperature stability and compressor reliability

#### **Conclusion:**

Swift Foods applied **our innovative oil technology** in their **industrial freezer compressors**, achieving a **9.5% improvement in energy efficiency**. The technology also ensured **better temperature stability**, reduced strain on compressors, and lowered operating costs, vital for maintaining the quality and safety of frozen food products.

This case study highlights the adaptability of **our energy-saving solution** in **food processing environments**, ensuring high efficiency and consistent performance in critical refrigeration systems.

# Case Study 13: University of HK - Industrial Chiller Performance

Industry: Education & Research Facilities

Facility: The University of Hong Kong (HKU)

Tested System: Industrial chiller units

#### Energy Savings Achieved: 10% reduction in energy consumption

Performance Outcome: Enhanced operational efficiency and cooling reliability

#### **Conclusion:**

The University of Hong Kong integrated **our innovative oil technology** into their **industrial chiller units**, achieving a **10% reduction in energy consumption**. The enhanced system exhibited improved **operational efficiency and cooling reliability**, critical for maintaining comfortable conditions in academic and research environments.

This case study reinforces **our energy-saving solution's ability** to optimize cooling systems in **educational and research facilities**, delivering consistent energy savings and operational benefits.

## Case Study 15: Baker's Dairy - Large-Scale Refrigeration Optimization

Industry: Dairy Processing

Facility: Baker's Dairy

Tested System: Large-scale refrigeration units

#### Energy Savings Achieved: 10.5% reduction in energy consumption

Performance Outcome: Improved cooling reliability and reduced operational costs

#### **Conclusion:**

Baker's Dairy integrated **our innovative oil technology** into their **large-scale refrigeration units**, achieving a **10.5% reduction in energy consumption**. The improved systems demonstrated **enhanced cooling reliability**, lower operational costs, and increased sustainability for critical dairy processing operations.

This case study showcases **our energy-saving solution's adaptability** in optimizing **large-scale refrigeration systems**, delivering tangible operational benefits across demanding environments.

## Case Study 16: Hotel - HVAC Performance Enhancement

Industry: Hospitality Facility: Premier Hotel Group Tested System: Centralized HVAC system Energy Savings Achieved: 9% reduction in energy consumption Performance Outcome: Improved cooling performance and guest comfort

**Conclusion:** 

The Premier Hotel Group incorporated **our innovative oil technology** into their **centralized HVAC system**, achieving a **9% reduction in energy consumption**. This resulted in **enhanced cooling efficiency**, reduced operational costs, and improved guest comfort key to maintaining high service standards in the hospitality industry.

This case study highlights **our energy-saving solution's effectiveness** in optimizing **centralized cooling systems**, delivering sustainable and cost-effective improvements for large hospitality facilities.

## Case Study 17: Retail Mall - Multi-Zone Chiller Optimization

Industry: Retail & Commercial Spaces

Facility: Metro Mall

Tested System: Multi-zone chiller system

Energy Savings Achieved: 8% improvement in energy efficiency

Performance Outcome: Enhanced cooling consistency and lower operational costs

**Conclusion:** 

Metro Mall utilized **our innovative oil technology** in their **multi-zone chiller system**, achieving an **8% improvement in energy efficiency**. The system provided **enhanced cooling consistency across zones**, reduced energy consumption, and lowered operational costs, contributing to an improved shopping experience and sustainable operations.

This case study emphasizes the capability of **our energy-saving solution** to optimize **multi-zone cooling systems**, demonstrating consistent benefits in large-scale retail environments.

# Case Study 18: Pharmaceutical - Precision Lab Cooling Optimization

Industry: Pharmaceutical & Biotechnology Facility: PharmaCo Tested System: Precision lab cooling units

Energy Savings Achieved: 8.5% reduction in energy consumption

Performance Outcome: Improved temperature stability and lower operating costs

#### **Conclusion:**

PharmaCo implemented **our innovative oil technology** in their **precision lab cooling units**, achieving an **8.5% reduction in energy consumption**. The upgraded systems demonstrated **better temperature stability**, ensuring optimal conditions for sensitive laboratory processes while reducing operating costs.

This case study highlights **our energy-saving solution's effectiveness** in maintaining **critical cooling reliability** in pharmaceutical and biotechnology facilities.

# <u>Case Study 19: Green Harvest Farms - Agriculture Refrigeration</u> <u>Optimization</u>

Industry: Agriculture & Food Storage

Facility: Green Harvest Farms

Tested System: Cold storage refrigeration units

Energy Savings Achieved: 7% reduction in energy consumption

Performance Outcome: Improved cooling reliability and preserved product quality

#### **Conclusion:**

Green Harvest Farms integrated **our innovative oil technology** into their **cold storage refrigeration units**, achieving a **7% reduction in energy consumption**. The upgraded systems ensured **enhanced cooling reliability**, preserving the quality and freshness of stored agricultural products while reducing operational costs.

This case study emphasizes **our energy-saving solution's capability** to optimize **cold storage systems**, delivering consistent results in agriculture and food storage environments.

## Case Study 20: Gulf Coast Brewery - Beverage Cooling Optimization

Industry: Brewery & Beverage Production

Facility: Gulf Coast Brewery

Tested System: Beverage refrigeration units

#### Energy Savings Achieved: 8% reduction in energy consumption

Performance Outcome: Enhanced cooling reliability and improved beverage quality

#### **Conclusion:**

Gulf Coast Brewery integrated **our innovative oil technology** into their **beverage refrigeration units**, achieving an **8% reduction in energy consumption**. The improved systems demonstrated **enhanced cooling reliability**, ensuring consistent beverage quality while reducing operational costs for large-scale production facilities.

This case study highlights **our energy-saving solution's ability** to optimize **beverage refrigeration systems**, delivering measurable benefits for the brewery and beverage production industry.

# Case Study 21: Tim Hortons – Freezer Compressor Efficiency

#### Improvement

Industry: Quick-Service Restaurants Facility: Tim Hortons, Charlottetown, PEI Tested System: Freezer compressors Energy Savings Achieved: 43.5% reduction in daily energy usage Performance Outcome: Improved compressor efficiency, reduced operating costs

#### **Conclusion:**

Tim Hortons' Charlottetown location tested AircoFridge Optimizer on its **freezer compressors**, achieving a **43.5% daily energy reduction** and lowering **operating costs**. This study validates the **optimizer's role in reducing compressor strain**, improving efficiency, and reinforcing sustainability efforts for quick-service restaurants.

## Case Study 22: Boston Pizza – HVAC Optimization & Energy Reduction

Industry: Restaurant & Hospitality Facility: Boston Pizza, Charlottetown, PEI Tested System: HVAC & Refrigeration systems

#### Energy Savings Achieved: \$18,550 annual cost savings

Performance Outcome: Improved system efficiency and reduced electricity consumption

#### Conclusion:

Boston Pizza integrated AircoFridge Optimizer into its **HVAC and refrigeration systems**, achieving **\$18,550 in annual energy savings** while optimizing compressor performance. This case study reinforces AircoFridge Optimizer's effectiveness in **restaurant chain operations**, improving cooling reliability and **reducing electricity usage**.

# Case Study 23: KFC – Compressor & Refrigeration Energy Savings

## **Validation**

Industry: Quick-Service Restaurants
 Facility: Kentucky Fried Chicken (KFC), Lower Sackville, Nova Scotia
 Tested System: Walk-in refrigeration units
 Energy Savings Achieved: Up to 50.02% energy reduction
 Performance Outcome: Enhanced compressor reliability, stable Delta T performance

#### **Conclusion:**

KFC Lower Sackville tested AircoFridge Optimizer on **walk-in refrigeration compressors**, achieving a **21.07% savings** with initial optimizations and **up to 50.02% after full additive installation**.

This validation underscores **brand-wide benefits** of optimization, proving **measurable ROI for refrigeration efficiency**.

# Case Study 24: Burger King – Franchise-Wide Energy Reduction Analysis

Industry: Quick-Service Restaurants
Facility: Multiple Burger King Franchise Locations
Tested System: HVAC & Refrigeration systems
Energy Savings Achieved: 32.38% total energy cost reduction
Performance Outcome: Lower utility costs, improved compressor longevity

#### **Conclusion:**

Burger King franchises implemented AircoFridge Optimizer across **multiple locations**, achieving a **32.38% total utility savings**, with **water/sewer (-38.36%), electricity (-**

#### 33.83%), and gas/propane (-29.30%) reductions.

This study reinforces AircoFridge Optimizer's scalability for large QSR franchises, proving financial and operational benefits at scale.

## Case Study 25: Wendy's - Charlottetown Location Utility Savings

# **Validation**

Industry: Quick-Service Restaurants Facility: Wendy's, Charlottetown, PEI Tested System: HVAC, refrigeration & kitchen equipment Energy Savings Achieved: 13.95% total utility savings Performance Outcome: Improved equipment efficiency, reduced maintenance requirements

#### Conclusion:

Wendy's Charlottetown implemented AircoFridge Optimizer across its **HVAC**, refrigeration, and kitchen systems, achieving a 13.95% reduction in yearly energy costs.

This case study highlights the optimizer's **broad applications in restaurant operations**, **cutting electricity, propane, and maintenance costs** while boosting efficiency.

# Case Study 26: Brewbakers – Energy Efficiency Optimization

Industry: Restaurants & Commercial Kitchens
Facility: Brewbakers Restaurant
Tested System: Walk-in coolers, HVAC, and kitchen equipment
Energy Savings Achieved: \$14,889.50 annual savings (~305.58% ROI over 10 years)
Performance Outcome: Extended compressor lifespan, reduced maintenance costs

#### **Conclusion:**

Brewbakers Restaurant optimized its **walk-in coolers, HVAC, and kitchen systems** using AircoFridge Optimizer, achieving **\$14,889.50 in annual savings** with a **305.58% ROI over 10 years**.

This study proves **clear financial payback** in restaurant efficiency upgrades, reinforcing AircoFridge Optimizer's **long-term value**.

# Case Study 27: Burger King – P&L Analysis Across Franchise Locations

Industry: Quick-Service Restaurants Facility: Burger King Franchisee Evaluations Tested System: HVAC, Refrigeration, Water & Gas consumption metrics Energy Savings Achieved: ~\$20,164.81 average savings per store annually Performance Outcome: Lower franchise energy costs, enhanced HVAC compressor function

#### **Conclusion:**

Burger King analyzed franchisee-wide P&L reports post-AircoFridge Optimizer installation, achieving **~\$20,164.81 in average annual savings per store**, reinforcing **long-term energy efficiency and operational improvements**.

This large-scale validation **proves direct financial payback** across restaurant brands.

# Case Study 28: FMI Savings Reports – KFC Franchise Energy Reduction

Industry: Quick-Service Restaurants
 Facility: FMI Franchisee Report (20 KFC Stores)
 Tested System: Utility & refrigeration energy consumption analysis
 Energy Savings Achieved: Gradual reductions from 2012–2016, peaking at \$19,751.43
 per store in utility cost savings
 Performance Outcome: Measurable yearly franchise-wide energy improvements

#### **Conclusion:**

An FMI report analyzed **20 KFC franchise locations**, revealing **significant utility savings trends from 2012–2016**, validating **cost reductions tied to energy optimization efforts**. This case study reinforces **long-term scalability**, proving **direct energy cost benefits over time**.

## Case Study 29: Tim Hortons – Refrigeration Optimization & Compressor

### **Lubrication**

Industry: Quick-Service Restaurants Facility: Tim Hortons Freezer Energy Evaluation Report Tested System: Refrigeration & freezer compressors Energy Savings Achieved: 11,717 kWh reduction (~\$1,862.92 annual savings) Performance Outcome: Enhanced temperature stability, compressor efficiency improvements

#### **Conclusion:**

Tim Hortons confirmed AircoFridge Optimizer reduced **freezer energy usage by 11,717 kWh annually**, leading to **\$1,862.92 in yearly savings**.

This case study reinforces **compressor lubrication benefits**, proving **lower energy costs & improved refrigeration stability**.

## Case Study 30: BAE Systems UK – Chiller Optimization & Energy

### **Efficiency**

Industry: Aerospace & Defense
Facility: BAE Systems, Chester House, Farnborough, UK
Tested System: York YCWA5120 Air-Cooled Chiller (Circuit 2)
Energy Savings Achieved: 46.6% increase in cooling capacity, 9.5% decrease in power consumption
Performance Outcome: Enhanced compressor efficiency, improved heat transfer

#### **Conclusion:**

BAE Systems tested **AFO** on **Chiller Circuit 2** of its **York YCWA5120 Air-Cooled Chiller**, achieving a **46.6% increase in cooling capacity** while reducing **power consumption by 9.5%**. The study confirmed **improved heat transfer**, compressor efficiency, and extended equipment lifespan, reinforcing the **value of lubrication enhancement in aerospace and defense facilities**.

## Overall View: AFO's Results Across Industries and Across the Globe

#### Energy Savings Achieved

- Across all 29 case studies, the average reduction in energy consumption ranges from 6% to 12%, with some facilities reporting over 40% improvements.
- Highest energy savings: 50.02%, achieved in KFC's refrigeration optimization case study.
- Lowest energy savings: 6%, achieved with head pressure optimization for the 101 Convention Center.
- Significant franchise-wide utility reductions, including 32.38% total cost savings across multiple Burger King locations.

#### Performance Outcomes

- Enhanced cooling reliability and operational efficiency were consistent across all systems, ensuring stable performance in high-demand environments.
- Quick-service restaurants like KFC, Burger King, Wendy's, Tim Hortons, and Boston Pizza achieved measurable efficiency improvements, reducing refrigeration and HVAC operational costs.
- Industries such as hospitality, education, pharmaceuticals, and agriculture reported noticeable improvements in temperature stability and guest comfort.

#### Industry-Specific Highlights

- Automotive Manufacturing:
  - Achieved over 9.2% energy savings with ductable split and VRF systems at Honda and over 10% in HVAC optimization at a major facility.
- Food Processing & Agriculture:
  - Facilities like Swift Foods, Green Harvest Farms, and Brewbakers achieved energy reductions ranging from 7% to 10.5%, ensuring product preservation and reduced operational costs.
- Recreation & Hospitality:
  - Edge Ice Arena achieved a 10% improvement in ammonia-based refrigeration efficiency, supporting high-demand recreational use.
  - Premier Hotel Group enhanced guest comfort while achieving a 9% reduction in HVAC energy consumption.
  - Boston Pizza optimized its refrigeration and HVAC systems, delivering \$18,550 in annual cost savings.
- Pharmaceutical & Biotechnology:
  - Precision lab cooling systems achieved an 8.5% reduction in energy consumption, ensuring temperature control for sensitive processes.
- Quick-Service Restaurants & Franchises:

- KFC, Burger King, Wendy's, Tim Hortons, and Boston Pizza locations validated compressor and refrigeration system optimizations.
- Franchise-wide savings include:
  - Tim Hortons Freezer Optimization: 43.5% reduction in energy consumption.
  - Burger King Franchise Utility Savings: 32.38% total cost reduction.
  - KFC Refrigeration Study: Up to 50.02% energy savings post-additive installation.

#### **Broader Impact**

- Environmental Sustainability:
  - These energy savings significantly reduce carbon footprints across industries, supporting global sustainability efforts.
  - The consistent reductions reinforce AFO's commitment to developing ecofriendly technologies.
- Economic Benefits:
  - Lower operational costs improve profitability while maintaining system reliability.
  - Franchise-wide savings prove large-scale scalability, with brands benefiting from utility reductions, HVAC optimization, and extended equipment lifespan.
- Operational and Financial Contributions:
  - Maintenance Cost Reduction:
    - Reduced frequency of repairs and replacements, extending the lifespan of compressors and other components.
    - Facilities benefit from fewer breakdowns and lower service costs.
  - Extended Equipment Lifespan:
    - Reduced strain and wear on equipment ensures longer service lives, delaying costly replacements.
  - Net Operating Income (NOI):
    - The combination of energy savings, reduced maintenance, and extended equipment lifespans results in measurable NOI improvements.
    - Payback periods for adopting this technology are often less than 24 months, making it a financially sound investment.

#### **Data-Driven Conclusions**

- Adaptability:
  - AFO's innovative oil technology has shown remarkable versatility, optimizing systems in diverse industries, including automotive, food processing, pharmaceuticals, hospitality, and quick-service restaurants.
- Consistency:
  - Energy efficiency improvements averaged 8% to 10%, highlighting the technology's reliability in delivering measurable performance gains.
- Scalable Solutions:
  - The results demonstrate scalability, proving effectiveness across both smallscale facilities (Cassidy's Ice, Brewbakers, Boston Pizza) and large-scale systems (Bosch, Honda, multi-franchise rollouts).

## Conclusion: Driving Performance and Sustainability Forward

The case studies demonstrate a clear pattern of success: a technology that not only delivers immediate efficiency gains but also unlocks long-term value through unseen benefits. From reducing energy consumption and operational costs to enhancing equipment reliability and extending lifespans, these results underline the transformative potential of this solution across diverse sectors.

What stands out is the adaptability of this technology—showcased in industries ranging from automotive and agriculture to hospitality and pharmaceuticals—and its ability to seamlessly integrate into complex systems, regardless of scale or demand. These accomplishments are not just a testament to innovation but also a reflection of its role in meeting modern challenges, such as sustainability and profitability.

As industries evolve, the technology's 45+ year legacy continues to inspire trust and confidence. Its balance of measurable outcomes and unseen, gradual enhancements positions it as a forward-thinking investment—one that aligns with both immediate business goals and long-term environmental commitments.