



Cutting Edge Predictive Maintenance

**A Guide to Boosting Uptime and Efficiency for
Forestry and Building Materials Operators**

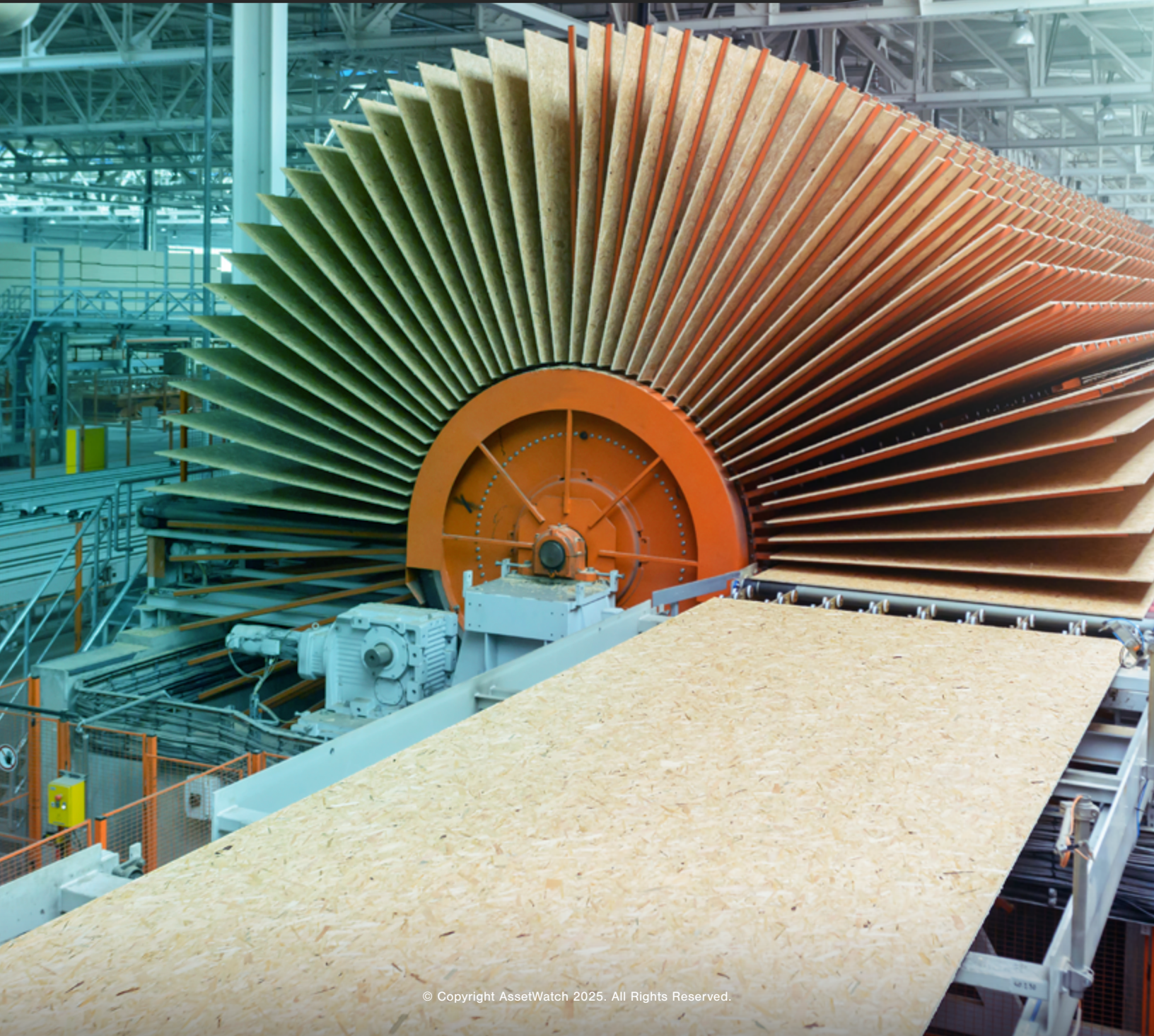


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1. Introduction

The Cost of Unplanned Downtime in Forestry and Building Materials

Unexpected downtime can be a major blow to forestry and building materials manufacturers, impacting them far more than just the upfront maintenance costs. Each hour of production downtime can lead to significant losses, with lumber, panels, and goods left in limbo. This can result in wasted raw materials, unfinished runs, and higher scrap rates, driving up costs, slowing production, and reducing revenue.

The effects of downtime go far beyond the mill floor. As restarts are rushed, quality risks rise, safety exposure increases, and delivery deadlines are missed. Left unchecked, these issues can escalate into costly recalls, which could damage contracts and hurt customer trust for years to come. In harsh operating conditions and strong demand, sawmills, panel plants, and heavy-equipment fleets can't afford to operate reactively.

Costs When Forestry and Building Materials Assets Fail

\$23K

Potential annual profit loss from just 5 minutes of unplanned downtime per day¹

\$3.2M

Annual lost sales due to spare parts unavailability²

30%

Portion of annual operational costs in wood processing lost to inefficient maintenances³

4.4%

Annual growth in retail furniture and wood product sales in recent years⁴

Sources: 1. nrs.fs.usda.gov 2. [proquest.com](https://www.proquest.com) 3. [ajisresearch.com](https://www.ajisresearch.com) 4. [mdpi.com](https://www.mdpi.com)

The Potential of Predictive Maintenance

When a predictive maintenance program runs smoothly, it enables teams to reach and maintain peak performance. By combining real-time vibration, temperature, and lubrication data with AI-driven analytics and human expertise in detecting and addressing equipment issues early on, teams can minimize the costs and risks of unplanned downtime, delayed customer orders, and safety or compliance incidents.

It also offers several key benefits, such as increased workforce morale, lower energy consumption per unit produced, reduced material waste, and longer equipment lifespan, among others.

But what if the potential of continuous maintenance doesn't match the day-to-day reality for mill operators, production managers, and maintenance teams?

This scenario is not uncommon. The good news is, it's entirely avoidable. You just need to be armed with the right information, planning, and expectations before committing to a predictive maintenance program.

IN THIS GUIDE, we'll explain how you can shift to predictive maintenance with confidence and start protecting your forestry and building materials assets.



2. Common Barriers to Avoid When Adopting a Predictive Maintenance Strategy

With razor-thin margins and tight delivery schedules in forestry and building materials manufacturing, operators know they need to innovate to keep their mills, plants, and equipment fleets running smoothly and competitively. But making predictive maintenance work can be tough, especially when there's no clear roadmap to success.

Whether it's the perceived upfront investment, concerns about integrating with ERP/CMMS, or questions about the measurable value the system will provide, ongoing maintenance programs can struggle to become established. When that occurs, organizations miss out on financial savings, increased workforce capacity, and the broader business advantages they're targeting.



4 COMMON REASONS

Predictive Maintenance Solutions **Fail in Forestry and Building Materials**



Upfront & Ongoing Costs

Many mills and manufacturers see predictive maintenance as unaffordable due to upfront costs. Beyond capital, there are hidden expenses like installation, service, training, and integration with ERP/CMMS systems. Reconfiguring legacy equipment or networks adds to the expenses, causing leaders to hesitate.



Resistance to Change

Introducing new technologies, especially AI-driven ones, demands a cultural shift. In forestry and building materials, where experience is vital, change often causes skepticism. Operators worry about disrupting workflows, increasing complexity, or risking their role and expertise. Without trust, adoption slows.



Lack of Expertise

Even when the tools are in place, people are the key. Many teams lack the training and confidence to interpret raw machine data, identify early warning signals, or prioritize effective interventions. If expert support isn't available, data becomes noise—and the very people who should be empowered feel sidelined or uncertain.



Frustration & Diminishing Returns

When predictive maintenance systems send too many alerts, especially false positives, it causes fatigue. Instead of feeling in control, operators are left juggling alarms, questioning priorities, and slipping back into reactive firefighting. Morale also drops, and the technology becomes an additional burden.

Any one of these four drivers can derail predictive maintenance—or keep it from ever getting off the ground. **But the problem isn't the concept of predictive maintenance itself. It's whether the solution aligns with mill operations, integrates with ERP/CMMS, and empowers maintenance and operations teams to act.**

NEXT, we'll explain how AssetWatch can successfully navigate the shift to predictive and empower your team to build lasting resilience on the shop floor.





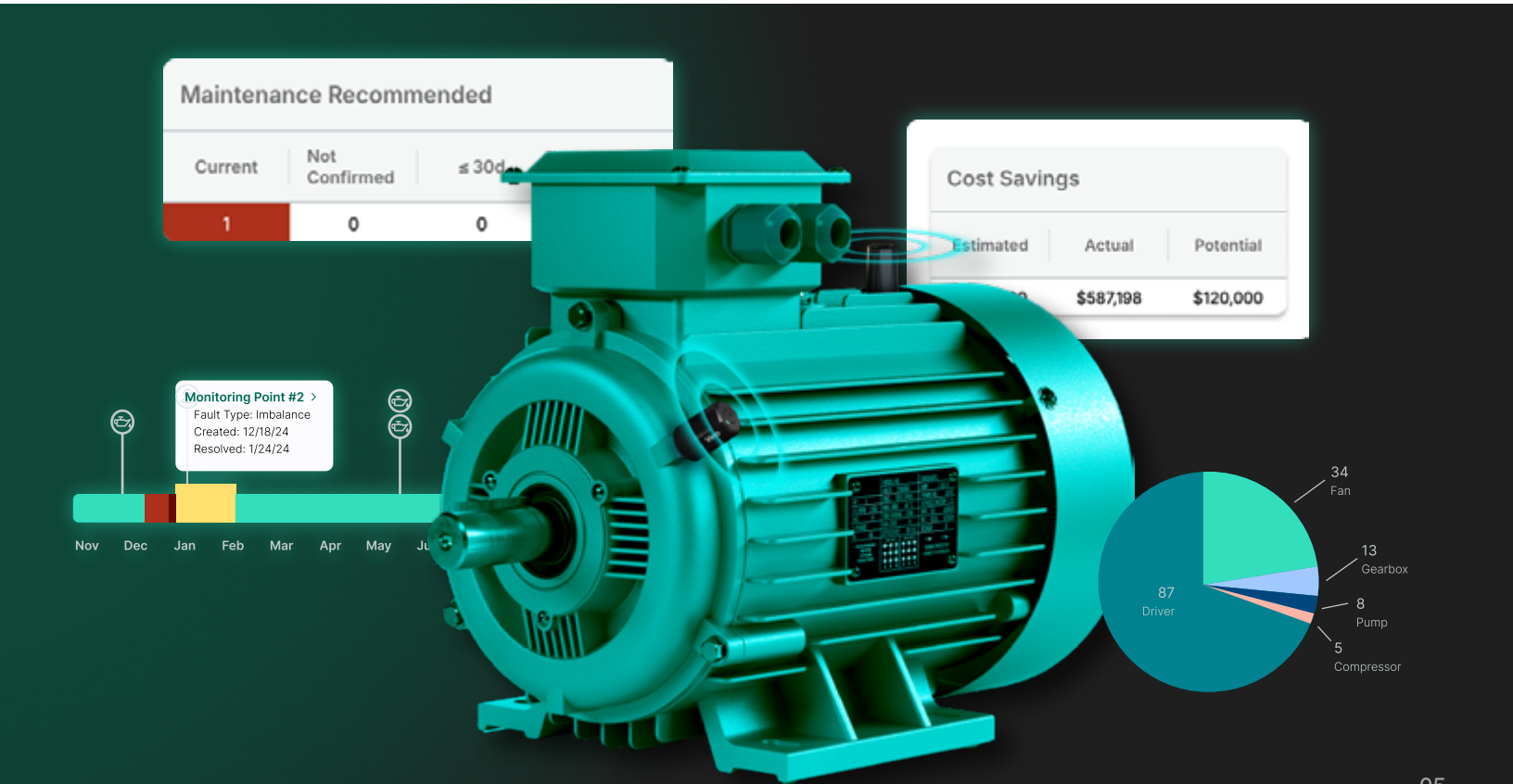
3. Your Guide for Reliable Operations with Predictive Maintenance

Having the power to predict and prevent equipment failures enables you to transform production, reduce safety and quality risks, and drive continuous improvement. The question isn't whether predictive maintenance is necessary, but how to maximize its value. Here are four essentials to ensure long-term program success.

Test Before You Invest

In terms of cost, effort, and time-to-value, a turnkey subscription offers the lowest barrier to entry and delivers the most value for your investment. With no CapEx—and no additional costs for hardware, software, criticality assessment, installation, ongoing monitoring, and dedicated CAT III+ support—your mill or plant can smoothly shift to predictive maintenance, with everything needed to increase uptime and improve operations quickly.

Start with a low-cost, low-risk trial. You'll see how the system integrates within your existing workflows, learn alongside an expert dedicated to your facility, and achieve quick wins. A trial takes pressure off your team while showing them the value of continuous maintenance and the benefits of a proactive culture from day one.





REAL WORLD SAVES

Wood Products Manufacturer Secures Early Trial Save and Team Buy-In

A leading engineered wood products manufacturer began a six-month trial of AssetWatch at one of its facilities. During the trial, a boiler pump showed elevated vibration and non-synchronous harmonics, and their dedicated AssetWatch Condition Monitoring Engineer (CME) suspected bearing damage. They alerted the maintenance team, recommending greasing, bearing verification, and replacement.

Maintenance confirmed the bearings were defective and completed the replacement. After the swap, vibration returned to baseline—avoiding unplanned downtime, preventing costly maintenance hours, and averting production loss. That early save alone delivered rapid ROI and helped secure organization-wide buy-in for predictive maintenance.



TOTAL SAVINGS:
\$74,000+

Empower Your Team with Advanced AI + Human Expertise

AI is invaluable for detecting early anomalies, but relying only on AI can cause mill and plant crews to become reactive again: demystifying alerts, wasting hours on false alarms, and missing events that cause downtime.

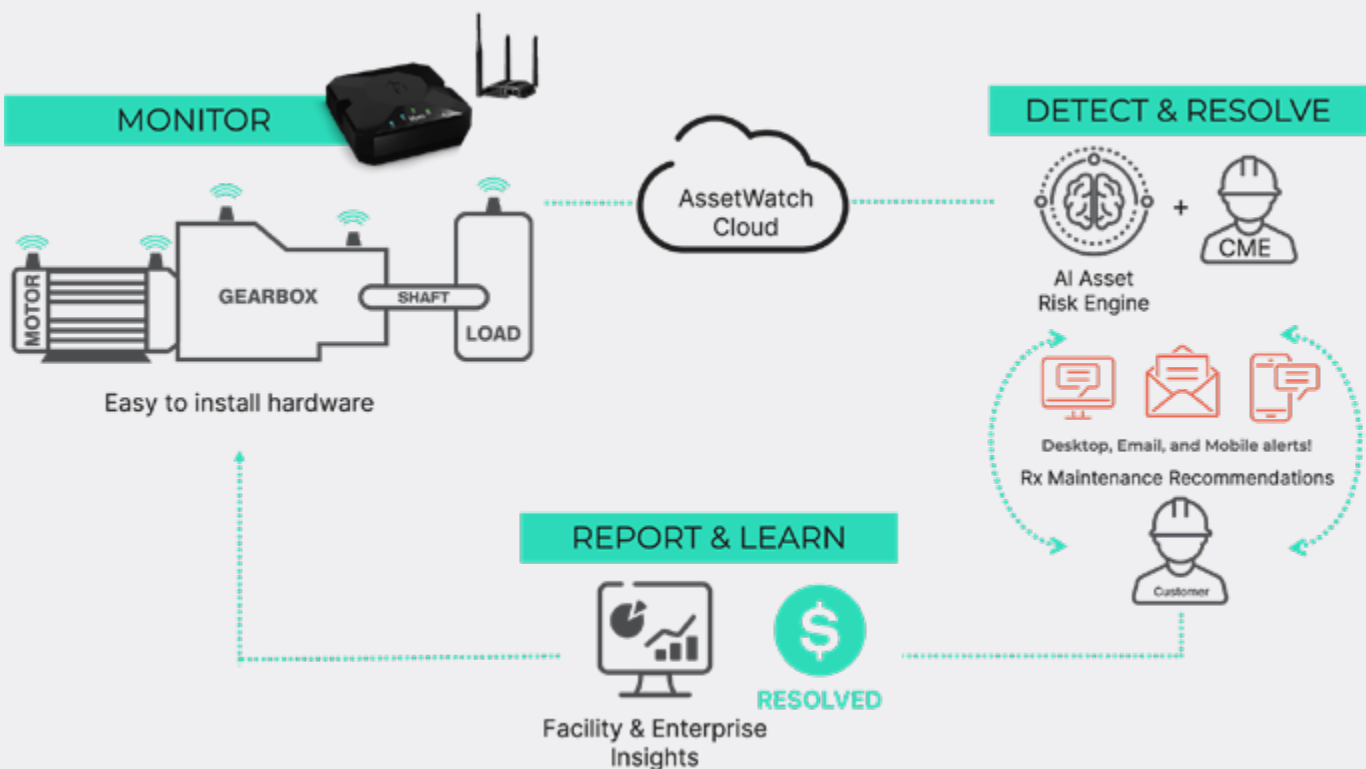
For long-term success, balancing predictive analytics with human insight is key.

Beyond training AI models (with 99% accuracy achieved), a dedicated expert who knows your operation can also validate signals, filter out false positives, and prioritize work based on production urgency.

Equally important, you gain a partner who proactively reaches out with prescriptive recommendations for the earliest, most practical resolution.

A FULL-SERVICE CONDITION MONITORING SOLUTION

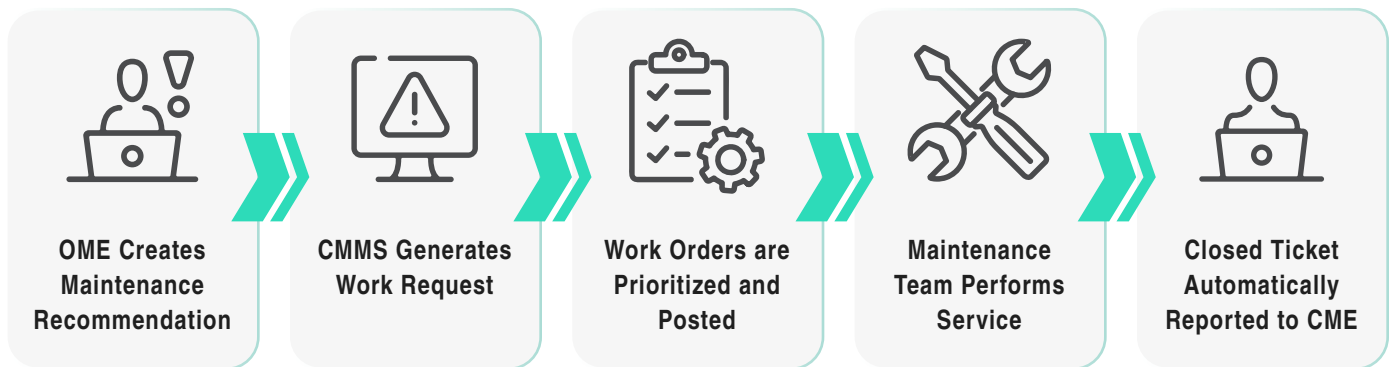
that combines the power of predictive analytics with human expertise empowers maintenance teams in forestry and building materials to proactively address failures and achieve more with less.



Streamline Workflows with Easy Integrations

The most effective maintenance solutions integrate with existing systems to streamline workflows, enhance collaboration, and improve decision-making. Choose a program that provides clear dashboard views, two-way communication with a dedicated expert, and seamless integration with your ERP and CMMS.

This setup eliminates time-consuming data entry and redundant efforts, enabling crews to focus where they can have the greatest impact. You'll be able to automate work order creation, prioritize maintenance tasks, easily track work orders to completion, and maintain auditable records for safety, quality, and compliance reviews.



REAL WORLD SAVES

Forest Products Critical Save: Replaced Refiner Plates

At an engineered wood products facility, a main refiner bearing showed an upward velocity trend with multiple harmonics of turning speed in the waveform and spectrum, triggering an alert in the AssetWatch platform.

The facility's dedicated AssetWatch CME notified maintenance and advised them to perform a field inspection to check for abnormal conditions, inspect for excessive wear, lubrication issues, and any loose or broken structural components.

Upon examination, the team confirmed abnormal conditions and replaced the refiner plates. After installation, vibration levels dropped significantly and returned to normal. In addition to preventing bearing damage, this save also avoided unplanned MDF line downtime.



TOTAL SAVINGS:
\$140,000

Focus on the Right KPIs for Continuous Improvement

Setting measurable goals that align with utility goals and KPIs is crucial for establishing your baseline, tracking progress, and demonstrating the overall value to the organization. The following KPIs help you assess the full impact of your predictive maintenance program.

Calculating the Value of PdM Over Time: Key Metrics

Cost Savings & ROI	Return on Investment (ROI) - $(\text{Total Savings} - \text{Cost of Implementation}) / \text{Cost of Implementation}$ Total Cost of Maintenance (TCM) - Preventive + Corrective + Predictive Maintenance Costs Cost per Failure Event - $(\text{Downtime Cost} + \text{Repair Cost} + \text{Labor Cost}) / \text{Total Failures}$ Reduction in Emergency Maintenance Costs - Baseline vs. Post-Implementation Reduction in Overtime Labor Costs = Overtime Hours Saved x Hourly Rate
Equipment Performance & Reliability	Mean Time Between Failures (MTBF) - $\text{Total Operating Time} / \text{Number of Failures}$ Mean Time to Repair (MTTR) = $\text{Total Downtime} / \text{Number of Repairs}$ Asset Uptime (%) - $(\text{Total Operating Time} / \text{Total Available Time}) \times 100$ Failure Rate (%) - $(\text{Number of Failures} / \text{Total Assets}) \times 100$ Reduction in Unplanned Downtime - Downtime Before vs. After Predictive Maintenance
Production & Operational Efficiency	Overall Equipment Effectiveness (OEE) - $\text{Availability} \times \text{Performance} \times \text{Quality}$ Planned vs. Unplanned Maintenance Ratio - $\text{Planned Maintenance Hours} / \text{Total Maintenance Hours}$ Capacity Utilization (%) - $(\text{Actual Output} / \text{Maximum Possible Output}) \times 100$ Throughput Increase (%) - $(\text{New Throughput} - \text{Baseline Throughput}) / \text{Baseline} \times 100$ Reduction in Maintenance-Related Production Delays
Safety & Compliance Metrics	Reduction in Safety Incidents = Incident Count Before vs. After Implementation Reduction in Regulatory Non-Compliance Events Audit Pass Rate (%) = $\text{Number of Passed Audits} / \text{Total Audits} \times 100$
Inventory & Spare Parts Management	Reduction in Spare Parts Inventory Holding Cost Reduction in Urgent Spare Part Orders Inventory Turnover Rate - $\text{Cost of Goods Sold} / \text{Average Inventory Value}$
Environmental & Energy Efficiency Metrics	Reduction in Energy Consumption per Asset Reduction in Carbon Footprint (CO2 Emissions Saved) Waste Reduction from Equipment Failures
Predictive Maintenance Effectiveness Metrics	Accuracy of Failure Predictions (%) = $\text{Correct Predictions} / \text{Total Predictions} \times 100$ Reduction in False Positives & False Negatives Reduction in Unnecessary Maintenance Interventions

Conclusion: Discover How Easy Predictive Maintenance Can Be

Some of the costliest challenges in forestry and building materials operations are caused or compounded by sudden, unforeseen equipment failures that halt production. Fortunately, a turnkey continuous maintenance program can make reliable operations a daily reality.

With the power of AI plus dedicated support from a seasoned analyst, you can overcome the usual barriers to adoption and progress—and empower your team to win the high-stakes battle against equipment failures.



Contact us today!
Take that first step.

AssetWatch makes getting started easy with a **low-cost, no-risk 30-day trial**—no CapEx, self-install, and no IT involvement required. We'll help you identify critical assets, get up and running in 1–2 days, and provide ongoing expert support tailored to your facility and workflows from day one.

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