



PROTECTING UPTIME AND REDUCING TOTAL COST OF OWNERSHIP:

THE FINANCIAL FORMULA FOR PERIODS OF REDUCED CAPACITY

Unexpected downtime. Expensive repairs. Equipment replacement. Issues that were once severely damaging for the operations and finance of a business are now, in a COVID-19 world, potentially business threatening. What once risked potential delays and a weaker bottom line, could now be the difference between project completion or long-term financial stability. As such, any action that can be taken today to reduce costs tomorrow should be prioritised, especially as margins for error become tighter and consequences graver.

Which is why, the introduction of a total cost of ownership (TCO) program should be strongly considered if not already present, with preventative maintenance forming the foundation and a universal team culture providing support.

As a technical adviser for Shell Lubricant Solutions, Greg Saffell has learned to listen carefully the first

time he walks through a customer's plant and to ask a lot of questions. From aerospace to marine, agriculture to mining, companies across a diverse range of industries often understand the need for proper equipment lubrication, but they may be overlooking issues that could impede greater reliability. These are the issues that Saffell identifies in an effort to develop a total cost of ownership (TCO) program that can help increase equipment reliability.

By definition, maintenance is designed to avoid problems. While most companies understand the importance of good maintenance programs, the challenge can be taking a good program and making it better. By adopting a TCO program, companies can find efficiencies they didn't even know existed, and reap benefits they didn't even realize were possible.

"Typically, customers are having issues that they've come to accept," Saffell says. "They might say 'We just have to change this pump every few months.' They don't realise maybe they can do something to make that pump last longer."

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While simple fixes may cost a few thousand dollars, lost revenue from equipment failures can run into the millions of dollars in lost productivity and replacement costs. There can be longer-term impacts, too, if the downtime inhibits a manufacturer's ability to meet customer needs.

That's why it is important for companies to think about lubrication and equipment maintenance holistically, recognising that short-term cost savings may be leading to bigger, preventable expenses over the long term.

Lower cost oils for example, may save money initially, however if it requires more frequent oil changes and provides less protection to the equipment, this could shorten component life. For many companies, the short-term savings simply aren't worth the long-term cost risk. "Some companies don't realize that they may be able to reduce their overall maintenance costs significantly by spending more up front on better quality lubricants," Saffell says. "Their equipment may last longer and with selected oils are likely to see lower energy costs or extended oil lifetimes.

THE RELIABILITY APPROACH

At Shell, we approach this total cost of ownership by identifying eight distinct factors that turn the wheel of equipment reliability, and we examine each of these factors when assessing a plant's need:

- Proper storage and handling of lubricants
- Accurate matching of lubricant to applications
 - making sure the oils and greases match equipment operating conditions
- Standard procedures for maintenance and operation
- Training to ensure workers know how to properly maintain equipment and what lubricants are required
- Contamination control to reduce particulates, water, and other contaminants that can reduce equipment life
- Oil condition monitoring to ensure the healthy condition of oil and lubricants
- Equipment optimization to get peak performance between maintenance cycles
- Maintenance planning based on key performance indicators

"We take into account all the categories, and we make sure that the customers aren't missing anything," says Wayne Lewis, a Shell senior consultant. "We're not just looking at products as a solution. There's more to improving the customer's lubrication program than just products."

RISK TOLERANCE

In developing a TCO program, it is helpful to think of equipment reliability the way financial advisors think about saving for retirement. Customers should ask themselves what sort of risk they are comfortable with when it comes to maintenance, says Jeff Wood, a Shell Lubricant Solutions technical adviser. To determine this factor, Wood recommends that customers ask themselves key questions about their operations, such as:

"Am I concerned about manufacturers' warranty claims or am I willing to shoulder responsibility for equipment reliability internally?" If an equipment manufacturer's warranty is important, then a TCO program should ensure that the factory-specified lubricants are used on each piece of equipment.

"How many different types of grease do I want to maintain?" Some companies prefer to use one general-purpose grease, while others want to optimize greases for different motors or machines. If they use one grease type for all their equipment, some manufacturer guidelines are likely to be overlooked.

"How effective is my training?" Do their people know the lubricant specifications for the equipment they maintain? Do they follow the maintenance schedules? Do they understand the importance of contamination control, and do they take the proper measures to avoid contamination?

If they use multiple grease types, what processes do they have to ensure they are applied properly to the right equipment?

Wood says the challenge in developing a TCO program is minimizing the number of lubricants and maximizing their applications. By assessing a company's risk tolerance, it is possible to find the proper balance while enhancing long-term reliability at a low cost.

TRAINING, INTERNAL CHALLENGES AND BUDGETARY CONSTRAINTS

While maintenance managers may understand the benefits of a TCO program, it could be more difficult to convince purchasing managers of the need to invest in higher-quality lubricants. Robles recommends using data to illustrate the trade-offs. "I would show them test data comparing the results of a high-quality versus a low-quality lubricant," he says. "I would also provide them with the cost per hour if a facility would be unable to operate due to a lube-related failure."

Budgetary concerns are not the only internal challenges companies may face. Reducing the cost of equipment ownership and boosting reliability also requires a cultural change in many organisations. A big challenge can be changing people's attitudes as they often do not consider oil quality or cleanliness until there is a problem.

Training programs should focus not just on how to service equipment, but also on the need to avoid contamination and ensure that the correct fluids or greases are applied to the corresponding components. Maintenance workers – not just managers – should share in the holistic view of equipment reliability.

BUILDING BETTER RELIABILITY

The benefits of TCO are not always immediately obvious. For example, a company can install a new pump, and it may run for months or years even if it is not properly lubricated. Over time, however, pumps will have to be replaced more frequently than those that are properly maintained. A poorly maintained pump can still fail even if the maintenance program is improved after damage has occurred.

Equipment's tolerance to poor or lax maintenance can make it difficult to demonstrate immediate tangible benefits of a TCO program.

"A TCO program may not provide instant feedback," Wood says. "But it helps customers put small steps into perspective and understand how they can lead to big savings in the long run."

The biggest benefit, however, comes from spotting potential problems before they happen. Companies that implement and follow a TCO program can avoid unexpected downtime and reduce or prevent potentially expensive repairs or replacement of equipment.

Ultimately, an effective TCO program can have a dramatic effect on reliability and generate significant savings in long-term maintenance and equipment costs. You just need to listen carefully and ask the right questions.