

2016 DIGITAL REPORT



MAINTENANCE STRATEGIES

CFE Media®

WHAT'S YOUR MAINTENANCE STRATEGY?

Maintenance strategy doesn't enter our non-technical brains unless it directly affects our productivity and well-being. You change the oil in your car's engine (that's preventive maintenance) to keep it running so the engine doesn't seize and you're not late for work. However, if you've ignored your car's transmission and it drops out on the way to a new business presentation, you have no choice but to stop at a garage for some reactive maintenance. (The other 'reaction' will be losing that new business opportunity, but I digress.)

Maintenance professionals who have hundreds of millions of dollars riding on consistent production and on-time delivery know there is much more to the story. The maintenance strategy they choose can have significant financial consequences.

FIVE METHODS, VARIOUS USES

Each of the five basic maintenance strategies — preventive (aka planned), reactive, predictive, condition based, and reliability based — has its own distinguishing features and optimal applications.

- **Preventive (aka Planned) Maintenance (PM).**

This is maintenance activity that takes place before something breaks so you don't incur equipment downtime or lost product. It is almost always cheaper to do this than to wait for failure.

- **Reactive Maintenance.**

Just as it sounds, this is maintenance activity that reacts to equipment failure after it occurs. However, sometimes waiting for equipment to fail is the best thing to do, as I'll explain below.

- **Predictive Maintenance (PdM).**

Maintenance based on specific information about the equipment that is a reliable predictor of imminent failure. Examples include oil analysis, vibration analysis, and thermal analysis.

- **Condition Based Maintenance (CBM).**

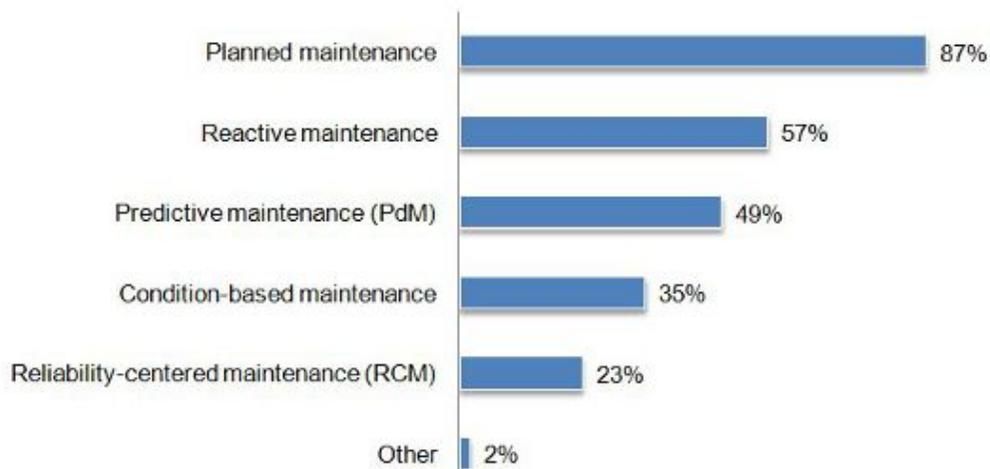
This is often used synonymously with predictive maintenance. The distinction? CBM is driven from real-time data gathered from sensors and other devices that measure specific conditions against known parameters of failure so that action can be taken in advance.

- **Reliability Centered Maintenance (RCM).**

has a much broader scope, often incorporating all of the other strategies. RCM has been referred to as a process to establish the safe minimum levels of maintenance. RCM begins with answering seven questions about the equipment:

1. What are the functions and associated performance standards of the asset in its present operating context?
2. In what ways does it fail to fulfill its functions?
3. What causes each functional failure?
4. What happens when each failure occurs?
5. In what way does each failure matter?
6. What can be done to prevent each failure?

Maintenance strategies currently in place



n=316

Source: Plant Engineering 2014 Maintenance Study, CFE Media LLC

7. What should be done if a suitable preventive task cannot be found?

RCM is a complete engineering approach designed to do whatever it takes to promote the greatest level of equipment reliability with the least investment of maintenance cost.

DECISIONS, DECISIONS.

Some general guidelines for choosing a maintenance strategy:

Preventive Maintenance (PM).

You'll need to develop detailed job plans that spell out the maintenance tasks and the time intervals for each to keep the equipment up and running. You also should have a means to capture the conditions found at each inspection. This is usually done with a PM work order and captured by the computerized maintenance management system (CMMS) for later analysis.

Reactive Maintenance (RM).

Only works if the equipment cannot be easily / cheaply repaired. If it is cheaper to replace than to repair, use reactive maintenance and then make sure you have a ready supply available. A common example is an electrical motor rated at 5hp or less.

Predictive Maintenance (PdM).

Requires an investment either in analytical equipment and user training or contractors to do the analysis. The decision depends on your specific situation.

Condition Based Maintenance (CBM).

Considered a good strategy overall (again, depending on your type of equipment) but it is also good way to minimize energy expense. CBM usually requires an investment in a remote data gathering system and user training.

Reliability Centered Maintenance (RCM).

A great maintenance strategy and considered the most cost effective overall. As we mentioned, RCM may encompass all of the other strategies depending on the equipment component and the available resources.

Plant Engineering recently gathered a lot of information about how maintenance professionals feel about these strategies. Take look at the Plant Engineering 2014 Maintenance Report to see what your peers have to say.

How have you resolved the issue of which maintenance strategy to employ in one or more scenarios at your facility? Please share your insights and experience, and thanks for visiting!

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