

12 tips for monitoring and protecting your power plant



Rotating machinery and balance of plant (bop) equipment are of critical importance to your power plant and optimising its operation

Unexpected machine failure is expensive, results in unplanned downtime and can cause secondary failures – which may create health and safety risks. That's why protecting your critical power plant assets with monitoring and protection systems that use continuous monitoring and data analysis should be at the heart of your business strategy. Comprehensive online data acquisition, data processing and analysis allow you to plan maintenance activities efficiently and can turn an unplanned shutdown into a scheduled outage. Here's our expert tips on how to safeguard your critical assets and increase their availability ...

Review your configuration settings

To improve efficiency and maximise availability, regularly review the configuration settings of your monitoring and protection system. These were set up when the system was installed and commissioned – but circumstances change. For example, do you need to adapt the alarms (alert and danger levels) based on operating experiences? Or have the relevant machinery monitoring standards changed? By having an appropriate configuration in place, you can be sure of the correct alarms and system responses when issues do occur. Keeping your software up-to-date will also help ensure you're getting the best operational performance and results.



Tip 1:

Regularly review the configuration settings of your monitoring and protection system.



Tip 2:

Keep up-to-date with the machinery monitoring standards applicable to your application and environment.



Tip 3:

Upgrade your software to the latest version to boost system performance and improve security.

Maintain on condition, not schedule alone

While a traditional time-based maintenance programme (preventive maintenance) can be useful in certain circumstances, it is not economical because machinery is regularly stopped unnecessarily. Use your monitoring and protection system as the basis for a condition-based maintenance programme (predictive maintenance) instead. Unlike the human eye, sensing and monitoring systems can “see inside” your equipment, so use this to extract information on operating conditions of machinery and auxiliary equipment. Capture baseline (reference) data on a frequent basis, and look for changes or anomalies to help diagnose potential issues weeks or months before they occur. This will enable you to plan specific maintenance activities in advance - optimising your plant downtime and spare parts management, and reducing costly emergency call-outs. Proactive condition-based maintenance programmes have been proven as the “best practice” for the management of critical assets.



Tip 4:

Capture machinery operating conditions daily to have baseline data against which to monitor the trend (evolution) of a machine's performance.



Tip 5:

Use the data to help diagnose potential issues, rather than wait for failures to occur.



Tip 6:

Implement a condition-based programme to optimise maintenance activities, saving time and money.

Improve your regulatory and compliance management

A power plant is legally obliged to comply with current regulatory requirements – so using a monitoring and protection system to help reduce emissions and log (store) the operating parameters makes sense. Machinery operating conditions can be used as inputs to a control system (DCS or PLC) to help optimise the operation of the machine and improve its lifespan.

For example, running an engine as close as possible to the optimum regime - to improve heat output, reduce fuel consumption, and/or inform an energy reduction strategy. And by installing sensing and monitoring equipment in hazardous areas, you can make sure that your most valuable assets – your employees – are safe at all times.



Tip 7:

Reduce and monitor emissions in accordance with laws and regulations.



Tip 8:

Use data to help drive an energy reduction strategy and increase the lifespan of your machinery.



Tip 9:

Monitor remotely in hazardous environments to help reduce health and safety risks.

Analyse data to make better decisions

The frequency at which you collect data depends on the application and while it has never been easier to capture large amounts of data, it is only useful if you analyse it on a regular basis with appropriate and efficient diagnostic tools. The insights obtained will enable you to make better decisions. For example, if data analysis shows that machinery maintenance is required, the plant downtime can be managed and scheduled to optimise the number of activities performed, thereby reducing costs and minimising disruption. Or data analysis might show that a machine is not operating efficiently, which might require further investigation. Optimising the operation and management of your critical assets will improve their efficiency, and ultimately, help protect them from failure.



Tip 10:

Review the configuration settings of your monitoring and protection system to make sure you are collecting and storing appropriate amounts of data regularly.



Tip 11:

Analyse and draw insights from your historical data using appropriate tools.



Tip 12:

Use insights from analysis to make better business decisions and drive your strategy forward.

Meggitt Vibro-Meter® products for power plants

While monitoring and protection systems and data analysis may seem like overwhelming tasks, the benefits are enormous. By reviewing your configuration settings, taking a proactive approach to maintenance, improving energy efficiency and drawing insights from the data, you can successfully protect your critical power plant assets and your business.

At Meggitt, we can help with any or all of the above. Sensing and monitoring solutions from the Vibro-Meter® product line are used in extreme environments to monitor almost every parameter necessary to provide detailed information on machinery operating conditions. Our solutions consist of measurement chains using our high-performance sensors, monitoring and



protection systems such as the VM600 and VibroSmart®, all managed and operated using VibroSight® – fast and user-friendly software with exceptional data handling and visualisation capabilities.

Our customer support and applications teams are available to support your maintenance activities, assist in the configuration of your monitoring solution, help with remote data interpretation and on-site visits, and propose tailored service level agreements. Contact us for more information.

The background of the entire page is a dark, blue-tinted photograph of an industrial facility. In the foreground, there are large, complex metal structures, possibly part of a power plant or refinery, with scaffolding and pipes. In the background, several tall, cylindrical smokestacks or chimneys rise into the sky. The overall atmosphere is industrial and technical.

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