Wind Solutions®

GUIDE

How to Best Utilize Your CMS Solution

3 steps to create a powerful CMS setup

Contents

INTRODUCTION

Navigating unpredictable times

Wind turbines are complex installations that must be monitored closely to avoid operational errors and failures.

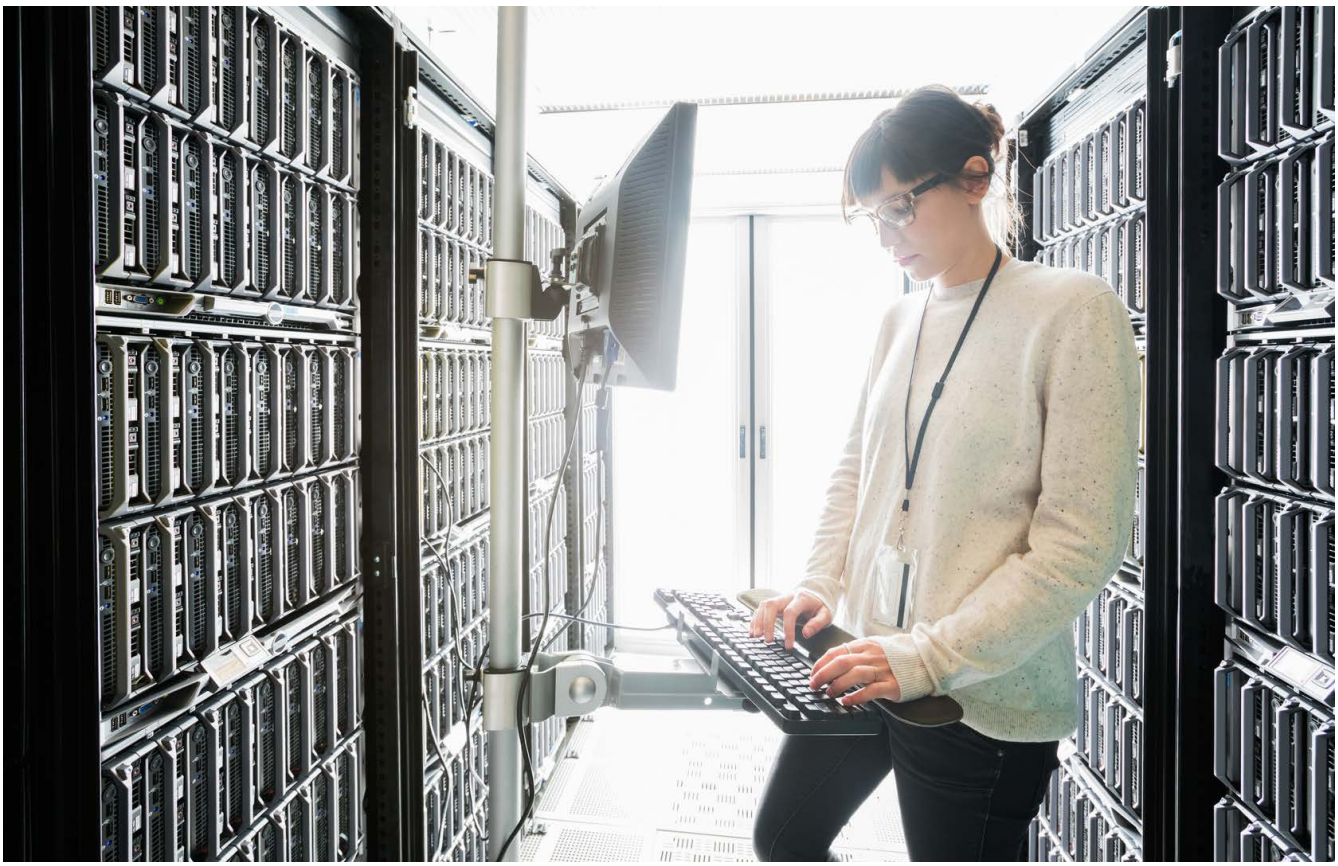
However, the current global situation, including materials shortage and a heightened cyber threat environment, is disrupting many wind farm owners and operators from running effective operations and maintenance programs.

A powerful CMS setup
In this guide, we have identified three steps to help you create a powerful CMS setup and utilize your CMS solution to its full potential. Together, these steps will enable you to improve operational decisions and reduce your wind farm's operating expenses and the levelized cost of energy (LCoE).

01

Implement a resilient cyber security infrastructure

Avoid disruption to your wind farm operations and energy production



Focus on your operational technology
Hackers interfering with critical infrastructures, such as energy production, are not new. It has increasingly become a top-of-mind concern for owners and operators, especially employees within IT and operations & maintenance are focused on avoiding cyber threats to ensure energy production flows seamlessly.

Cyber-attacks on your information technology (IT) infrastructure can potentially restrict access to business-critical information, disrupting daily operations. However, an attack on your operational technology (OT) infrastructure, including your CMS solution and its hardware components, poses a significant risk of disruption and damage. Ultimately, the physical hardware components risk becoming damaged – making your assets inoperable.

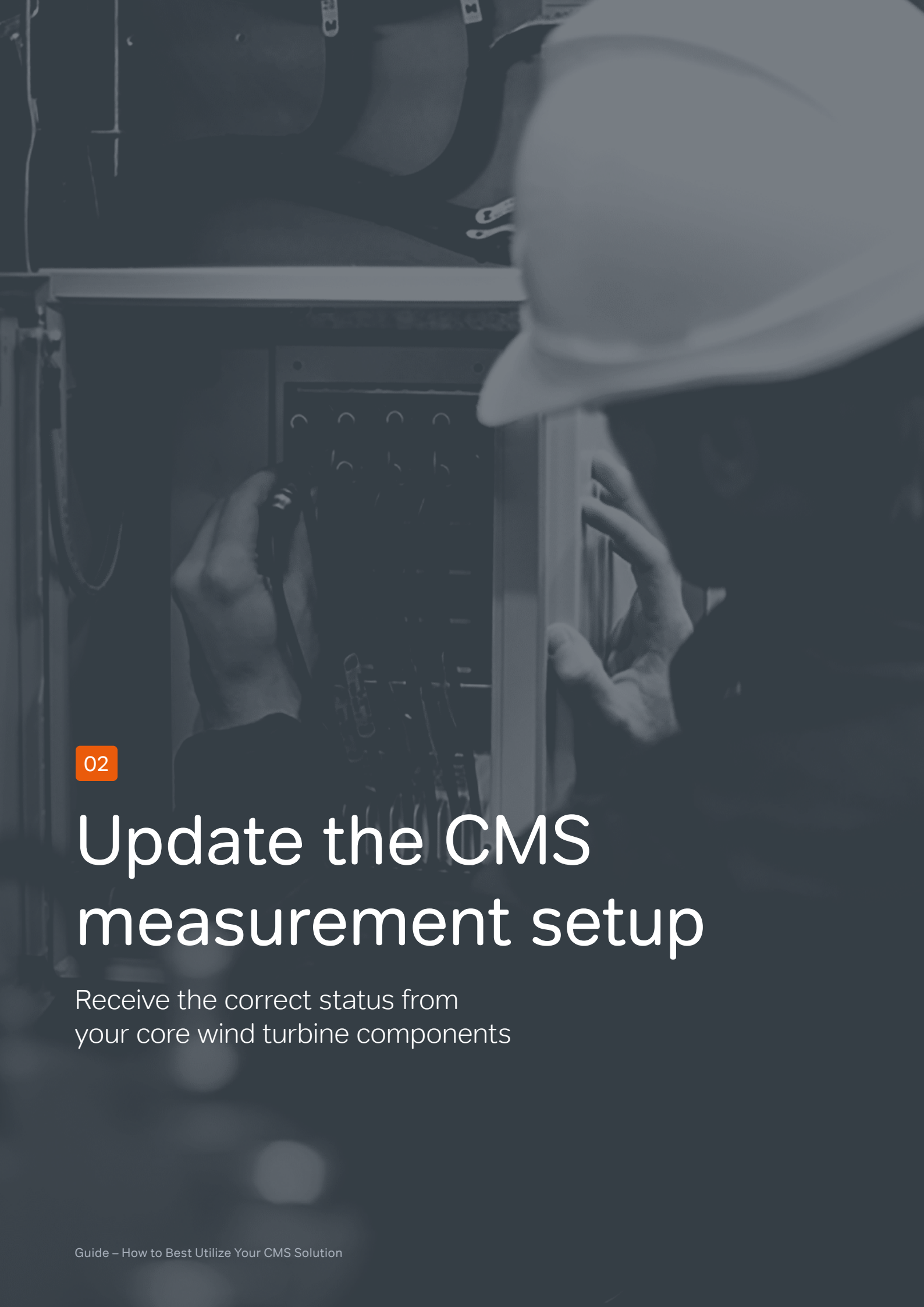
Mitigating cyber security threats
Cybersecurity mitigation is key to avoiding cyber-attacks. Firstly, choosing a CMS provider that prioritizes cyber security and has an end-to-end solution spanning both IT and OT is crucial. Ideally, a CMS solution should be a hardened system by default and operate a zero-trust security model, which in turn creates secure conditions for communication between the IT and OT zones.

Secondly, you can implement a range of security processes to your network infrastructure, which helps you avoid cyber threats, including network segmentation between IT and OT networks and applying continuous monitoring.

Lastly, maintaining strong cyber security practices, including updating software and firmware, maintaining a strict user management policy, multi-factor authentication to IT and OT networks and preventing phishing emails from reaching users will help keep cybercriminals at bay.

Fast track

- Cyber-attacks on your operational technology (OT) risk disrupting and damaging physical hardware components.
- Choose a CMS provider with an end-to-end solution spanning both IT and OT.
- Implement security practices, including network segmentation, network monitoring, and industry-standard practices.



02

Update the CMS measurement setup

Receive the correct status from your core wind turbine components

New parts, new characteristics
When replacing faulty or worn-down components in your wind turbine, the new replacement may differ in vibration characteristics due to design or material changes.

Many O&M teams replace components and reconnect them back into the CMS solution. However, ensuring that you have updated your CMS measurement setup is essential, which is necessary to receive accurate vibration data and readings.

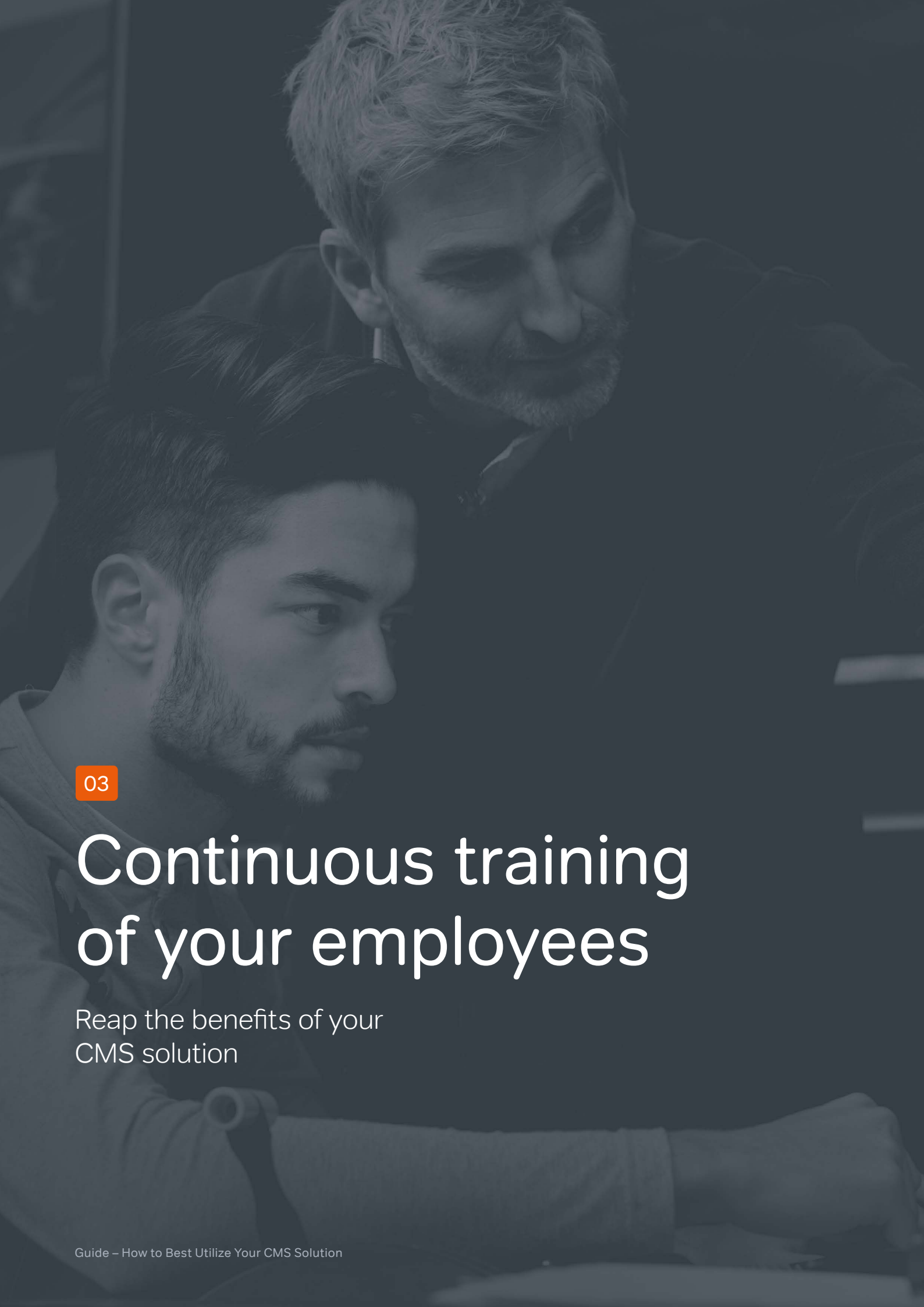
Therefore, a one-to-one exchange requires you to rerun the alarm thresholds and adjust them according to the newly replaced component.

Incorporate into work instructions
Incorporating the measurement setup into your O&M workflow via your work instructions is the best way to ensure that all components receive updated measurement configurations when replaced. Most importantly, readjusted alarm thresholds will ensure your CMS solution provides correct readings immediately after replacing the part.

Updating your CMS measurement setup will ensure that all alarms and vibration data are in-sync. This will ensure that your O&M planning and scheduling process remains unaffected – and you can replace your fatigued components at just the right time.

Fast track

- Replacements of core wind turbine components are never identical and differ in vibration characteristics due to design or material changes.
- Updating your CMS measurement and alarm setup after a component replacement is vital to receiving your components' correct status.
- Incorporating this into your O&M planning and scheduling process will ensure received vibration data is in-sync.



03

Continuous training of your employees

Reap the benefits of your CMS solution

Regular training, higher quality of work-output
Running a cost-effective and efficient O&M program is more than selecting the right CMS solution for your business. With technological advancements in condition monitoring, data analysis and machine learning, continuous training of your employees is a core part of utilizing your CMS solution.

The better your employees know the ins and outs of your CMS solution and its many functions, the easier you can operate it and reap the benefits of its advanced functions.

Whether you are training Field Technicians to install and commission hardware or your monitoring team to use advanced functions in your CMS solution: regular recurring training will enable your employees to increase productivity and work-output quality. This allows you to operate a proactive and cost-effective condition-based maintenance program.

Tailored training or an alternative solution
Make sure your CMS provider offers training for Field Technicians, specifically on how to install, commission and test the CMS hardware, and training for Site Managers, CMS engineers etc., on how to perform daily monitoring tasks more effectively.

If your business is not yet geared for an in-house monitoring setup, choose a CMS provider that offers a condition monitoring service where they do all the monitoring for you. This is a cost-effective alternative where your O&M team has a complete overview of your wind turbine fleet's health status. You can receive recommended actions that feed directly into your O&M planning.

Fast track

- Technological advancements in condition monitoring, including data analysis and machine learning, mean employee training is necessary.
- Continuous training of Field Technicians, Site Managers, CMS engineers, etc., will enable you to drive a proactive condition-based maintenance program.
- If your business is not geared for an in-house monitoring setup, choose a CMS provider that offers a condition monitoring service to help guide your operational decisions.

SUMMARY

Take advantage of your CMS solution

Whether you have inherited a preinstalled CMS solution or you are on the lookout for a new solution with advanced diagnostic capabilities, one thing is sure:

Utilizing your CMS solution's full functionalities will enable you to drive proactive operations and maintenance planning and drastically improve operational efficiency, including minimizing downtime, reducing O&M expenses and the levelized cost of energy (LCoE).

Next steps

At KK Wind Solutions, we have over 25 years of experience developing condition monitoring solutions. We focus on helping you best utilize your condition monitoring system and improving your O&M planning.

Our flagship condition monitoring solution, TCM® (Turbine Condition Monitoring), is designed and developed specifically for the wind industry. TCM® enables owners and operators to predict turbine health and improve operational decisions that help reduce turbine downtime and increase power production – providing peace of mind.

Contact us if you want to know how we can help you improve your existing CMS setup.