

# Case study: Upgrading a vibration protection system



## Keeping machinery running smoothly

TrustEnergy is the second largest player in the Portuguese electricity sector with a total installed capacity of 3.7 GW. Located along the river Douro in northern Portugal and in operation since 1999, Tapada do Outeiro is a 990 MW combined cycle gas turbine plant equipped with three Siemens units.

### The challenge

Meggitt's Vibro-Meter® machinery monitoring system (MMS) has been providing machinery protection on the Tapada do Outeiro units since 1999. During a major refurbishment, TrustEnergy asked Meggitt's advice on how to replace the existing MMS with a newer protection system and add condition monitoring.

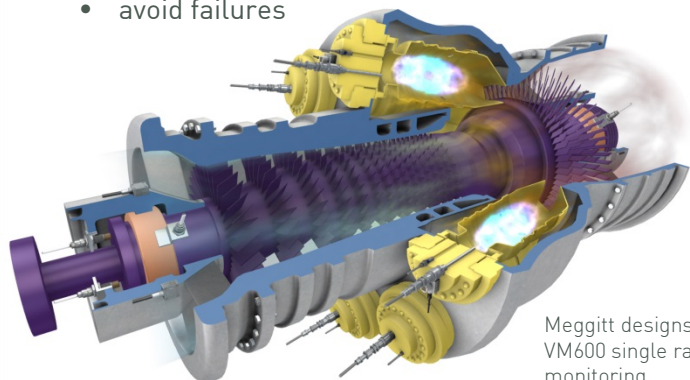
### The solution

The configurable solution provided by Meggitt included:

- › VM600 rack – machinery protection and condition monitoring in a single system (one rack for the gas turbines and generators, one for the steam turbines). Installation, supervision and commissioning were achieved in only 3 days, which allowed our customer to keep to their schedule.
- › VibroSight® 3.x – the latest condition monitoring software.
- › Vibro-Meter® proximity probes (TQ402), high-temperature accelerometers (CA202), dynamic pressure sensors (CP216) and signal conditioners. All existing vibration sensors were checked and only a few sensors needed replacement, reducing the costs for our customer.

### The benefits

- › Single solution for machinery protection and condition monitoring replacing multiple MMS racks.
- › All vibration and process parameters integrated into one platform
- › Basic combustion monitoring to monitor combustion phenomena inside the gas turbine.
- › A field-proven system interchangeable with the existing hardware architecture and software interface.
- › Common hardware and software provides a complete vibration system that is more convenient to use and easier to manage.
- › Latest-generation VibroSight® software enables the operator to configure, operate and manage data from the VM600 machinery monitoring systems. It helps TrustEnergy to
  - monitor and analyse real-time and historical trends and dynamic data
  - extend machinery life
  - avoid failures



Meggitt designs and manufactures the complete measurement chain - from the sensors to the VM600 single rack system and the VibroSight® software for machinery protection and condition monitoring

**Vibro-Meter®**

## Meggitt Sensing Systems

### Our product competencies and services:

Avionics displays | Condition monitoring | Inertial sensors | Ignition systems | Motion and position sensors  
Performance sensing | Power systems | Sensors

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## At-a-glance

- › Meggitt's Vibro-Meter® machinery monitoring system (MMS) has been providing machinery protection on the turbines at the Tapada do Outeiro combined cycle power plant since 1999.
- › During a refurbishment of one of the units at the power plant, our MMS system was replaced with a single system solution - the Vibro-Meter® VM600 rack-based system and the VibroSight® software suite - to provide machinery protection and condition monitoring from a single rack.
- › Customer saved money by only replacing a few of the Vibro-Meter® proximity probes, high-temperature accelerometers, dynamic pressure sensors and signal conditioners.
- › All vibration and process parameters are integrated into one platform.
- › Our system alerts an operator to any change in vibration levels, which allows TrustEnergy to determine the source and investigate potential problems.
- › This single solution with common hardware and software is more convenient to use and easier to manage.
- › Meggitt is a leading provider of high-performance monitoring and sensing systems.

## Here to help

Meggitt designs and manufactures the complete monitoring measurement chain – sensors and related equipment, hardware and software. Our systems are installed in many of the world's largest power plants. To discuss how our solutions can work for you, email us at [energy@ch.meggitt.com](mailto:energy@ch.meggitt.com), call us on +41 26 407 11 11 or visit our website at [www.meggittsensing.com](http://www.meggittsensing.com).



**Vibro-Meter®**

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