



  
**Intelligence  
for Tomorrow**

 **ENGING**

Enging's Corporate Presentation

15/03/2023 2023



  
**ENGING**  
MAKE SOLUTIONS

**THE COMPANY**

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# ENGING AT A GLANCE

- Headquartered in Portugal, Enging ("Enging" or the "Company") is an innovative provider of asset condition monitoring solutions for mission-critical industrial assets
- Exclusively using electric variables with a non-invasive technique, Enging has the capacity to pinpoint degradation in electric assets several months before it becomes a catastrophic fault
  - Enging's technology is compatible with most electrical machines currently being utilized in power generation and industrial manufacturing processes
- The Company's real-time, actionable insights enable industrial asset operators to both optimize the performance and maximize the lifespan of its electrical machine assets
  - The assets Enging monitors represent important long-term investments for its customers and have high unplanned downtime costs
  - Comparatively, the costs of Enging's monitoring services represent only a small fraction of the asset's replacement value while dramatically reducing the incidents of costly unplanned downtime events



## Enging's Value Proposition

The implementation of Enging's monitoring solutions allow customers to:

- Optimize asset life cycle management
- Reduce operating and maintenance costs
- Maximize machine lifespan
- Improve asset efficiency
- Prevent catastrophic failures
- Reduce unplanned downtime



**-80%**  
Detection of future potential faults



**-25%**  
Reduction in regular maintenance costs



**-70%**  
Decrease in unplanned downtime



**-15%**  
Reduction in energy waste

## Numerous Applications

  
Rotating Machines

  
Transformers

  
Power Converters

  
Solar PV Farms

  
Wind Turbines

  
Battery Storage

## By the Numbers

20 Employees

> 10 GW Monitored

70% Revenue CAGR (21-25')

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## ENGING'S OFFERING

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# ENGING'S SOLUTION

MONITORING SOLUTIONS FOR WIDE RANGE OF MISSION-CRITICAL INDUSTRIAL AND ENERGY ASSETS





### PreditTransf

- Power Transformers
- Distribution Transformers
- Earth Transformers
- Open-phase Grid Faults



### PreditWindT

- Distribution Transformers
- Power Converters
- Wind Generators



### PreditMot

- Fans
- Pumps
- Compressors
- Conveyors
- ...



### PreditPV

- Distribution Transformers
- Solar Inverters



### PreditGen

- Hydro
- Thermal
- Biomass
- Solar
- ...








### PreditBS

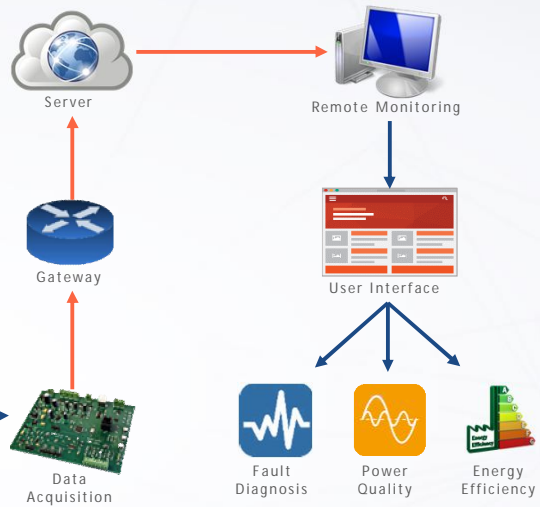
- Distribution Transformers
- Bi-directional Inverters

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# GENERAL OVERVIEW

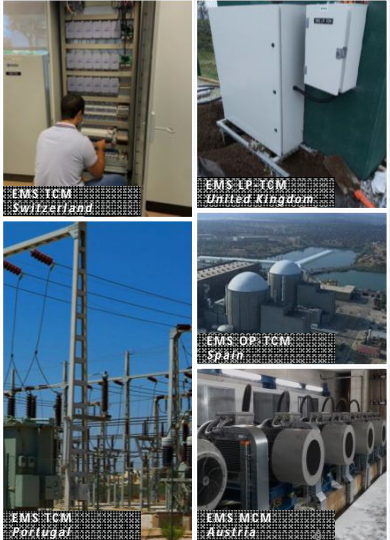
-  Power Converters
-  Rotating Machines
-  Solar PV Farms
-  Transformers
-  Wind Turbines

*Non-invasive sensors capture electric variables (voltage and current signals) from a variety of mission-critical electric assets*



Enging's online, real-time monitoring platform provides users with timely, sensitive, and reliable fault diagnosis

### SAMPLE PROJECTS



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# THE ENGING ADVANTAGE

## ENGING'S VALUE

-  ONLINE REAL-TIME MONITORING
-  NON-INVASIVE
-  SMART ALGORITHMS TO ALL ELECTRIC MACHINES
-  NO NEED OF HISTORICAL DATA AND LEARNING PERIOD
-  MORE SENSITIVE AND RELIABLE DIAGNOSIS
-  EARLY FAULT DETECTION AND LOCATION
-  DOES NOT NEED SPECIALIZED TECHNICIANS

## BROAD RANGE OF MISSION-CRITICAL SECTORS



GRID OPERATORS



INDUSTRY



POWER GENERATION



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SOLAR ENERGY



WATER UTILITIES



WIND ENERGY

## SOLUTION OVERVIEW

### TRANSFORMERS

The **PreditTransf** for power transformers for distribution transformers both use a unique and disruptive technology to diagnose malfunctions and predict failures in one of the most critical and costly components in electricity networks.



### MOTORS

The **PreditMot** tackles an unsolved problem in industry across the world: electric motor reliability and lack of efficiency. **PreditMot** can be used across all scenarios and motor characteristics.



### GENERATORS

The **PreditGen** differentiates and surpasses existing industry standards based on mechanical concepts by harnessing the power of the information available in the electrical variables to continuous detection and localization of faults.



### HYBRID SOLUTIONS

The **PreditWindT**, **PreditPV** and **PreditBS** are specially designed to monitor the main components of the power modules in wind turbines, utility-scale photovoltaic power plants and battery storage systems.



# MCM WATER


## PUMP EFFICIENCY MONITORING

- Real-time monitoring of electric motors aiming to predict and prevent possible failures;
- Improve energy efficiency by the analysis of both electric and mechanical parameters;
- Complete monitoring of electric drives used in pumping systems.





EPAL  
Grupo Águas de Portugal



AGÊNCIA NACIONAL  
DE INOVAÇÃO



ORDEM  
DOS  
ENGENHEIROS

Cofinanciado por:





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