

OperationsExposé



ENERTRAG OPERATION

First class inspections and
operations management

ENERTRAG Portrait

ENERTRAG Operation

The German company ENERTRAG Operation is a subsidiary of ENERTRAG and bundles the technical expertise during the operation phase of renewable energy projects under its roof. As soon as the electricity starts to flow, we get started. As a technology-driven company, we offer high-quality services in the areas of inspections and operations management. Our employees ensure the safe and profitable operation of 1,072 wind turbines from six regional offices.

MICHAEL DAHM



Managing Director
ENERTRAG Operation

Our role in the ENERTRAG family

PROJECTS

Plan for success

We ensure local input to plan for the long term success of our projects.

OPERATION

Runs like a charm

We ensure the safe and successful operation of renewable energy projects.

POWERSYSTEM

Let the data speak

Optimisation of renewable power plants through monitoring, control, network verifications and automation of processes, at a distance, and at a moment's notice.

SERVICE

For the future

We reliably maintain photovoltaic and wind farms and find solutions – quickly and efficiently.

TECHNOLOGY

Building a better lightbulb

We equip wind turbines with intelligent flight safety identification.

FOUNDING YEAR

1992



INSPECTIONS

IN COOPERATION WITH:



SERVICES

- > INSPECTIONS
- > OPERATIONAL MANAGEMENT

PHOTOVOLTAICS

IN COOPERATION WITH:



DRONE INSPECTION

IN COOPERATION WITH:



6

LOCATIONS



DAUERTHAL
BERLIN
EDEMISSEN
HAMBURG
DURY (F)
NEUVILLE (F)

>140

EMPLOYEES



FUTURE TOPICS

POWER-TO-X,
BATTERY,
OPTIMIZATION OF
CONTINUED OPERATION



3.250

INSPECTIONS &
CHECKS PER YEAR



CERTIFIED
DIN EN ISO
9001:2015

2.7 GW
PLANTS IN
OPERATION



Operations management

What drives our operations management?

Every minute, our control room monitors and evaluates the operating and condition data of your plants. And we do this **24 hours** a day, **seven days** a week – as if we were on site around the clock. We also pool expertise from other specialist departments to create the greatest possible synergies. We do all this with the aim of achieving maximum energy availability for your plants.

Our technical operations management is divided into three teams: TOM Germany, TOM International and the support team – this ensures for the customer that we maintain a holistic but also focused view at the same time. In addition, we can set thematic priorities that are transparent and comprehensible to all parties.

We offer:

- > Plant data management
- > Plant monitoring
- > Plant management
- > Occupational health and safety
- > Commercial services
- > Object-oriented risk assessment

Network effect

In order to put together a suitable service package for our customers at any time, we can access an experienced network of partners. No matter whether it is about the efficient technical operation management of wind and photovoltaic solar parks, periodic or a la carte inspections or a lifetime extension of your old plant – we can help you due to our long experience.

PARTNER



MANY YEARS OF EXPERTISE IN THE FIELD OF PHOTOVOLTAICS AND WIND

GP JOULE Service

Specialized in the operational management of wind energy and photovoltaic projects in the megawatt class, with a focus on photovoltaic solar parks

- > Certified process and quality management according to DIN EN ISO 9001:2015
- > Extensive technical know-how through in-house MEP and quality manager
- > Offering modular full service, tailored to specific customer requirements



Highly concentrated: Our colleagues in the remote monitoring centre



ACCREDITED INSPECTION BODY

ENERTRAG Operation

Technical operations management and inspections for all renewable energy plants, especially wind power plants

- > Technical operations, inspections for wind/photovoltaic solar parks, biogas plants and battery storage systems
- > Accredited inspection body according to DIN EN ISO/IEC 17020
- > Regular internal and external audits to maintain accreditation according to DIN EN ISO/IEC 17020
- > Certification according to DIN ISO 9001



Inspections

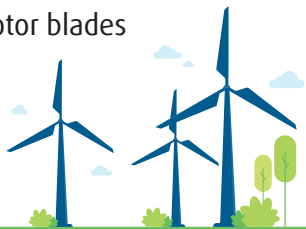
Who are we?

The inspection department of ENERTRAG Operation consists of a team of 26 employees at three locations in Germany and one location in France. The experts are specialized in different inspection areas: Machine inspections, gearbox and rotor blade inspections, vibration measurements and also DGUV V3 checks (check of electrical installations and equipment).

Our technical expertise ensures that we can properly perform whatever inspections may be required. In this way, we ensure a consistently high level of quality and a high level of customer satisfaction. The proof is in our Accreditation by the German Inspection Body (DAkKS) according to DIN EN ISO/IEC 17020.

We offer:

- > Post commissioning inspection
- > End of warranty inspection
- > Periodic inspection
- > Condition-based maintenance inspection
- > 20 year lifetime extension verification (inspection and analysis)
- > Inspection of rotor blades and gearbox
- > DGUV V3 check
- > Drone inspections of rotor blades



Non-contact rotor blade inspection and lightning protection measurement by drone

Spectacular image quality, autonomous flight pattern, higher detection rate of defects: With the technology of the renowned cooperation partner Sulzer Schmid Laboratories AG, the surface of rotor blades of any size can be completely photographed in a fraction of the time and with high resolution imaging and a wide detection field. The highlight: Our experienced rotor blade experts are, after an introductory and artificial intelligence-based analysis of the images, of course further used for the evaluation of the photographs.



Innovative: Our inspection department at ENERTRAG Operation

PARTNER



MANY YEARS OF EXPERTISE IN PHOTOVOLTAIC AND WIND TECHNOLOGY

Bavnick Wind Technik

Damage assessment of wind turbines

- > Independent expert in the field of wind turbines
- > Specialized in the assessment of wind turbines as well as consulting and support for operators
- > Certified expert DIN EN ISO/IEC 17024
- > Certified by German TÜV NORD according to DIN EN ISO 9712:2012



ANALYSIS PORTION OF LIFETIME EXTENSION VERIFICATION

UL

Cooperation partner for lifetime extension appraisals (analytics)

- > Accredited according to ISO IEC 17065
- > On the expert advisory board of the BWE
- > LTE certifications issued according to ANSI UL 4143
- > Certification according to DIN ISO 9001



ROTOR BLADE INSPECTION AND LIGHTNING DETECTION MEASUREMENT VIA DRONE

Sulzer Schmid Laboratories AG

Cooperation partner in the development of drone services

- > Founded 2016 in Zurich, Switzerland
- > Focus on innovation in the energy service sector
- > Developer of the 3DX™ Blade Platform for transparent asset management of rotor blades

Our wealth of experience



OVER 100 YEARS OF COMBINED WIND AND PV EXPERIENCE FOR OPERATIONAL MANAGERS.

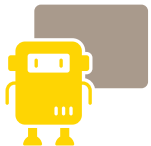
Internal synergies



> Thanks to our partner network, we can tailor the **range of services to precisely suit our customer's needs** (control room which controls your plants 24 hours 7 days a week, operational management of photovoltaic and wind parks, inspections, Powersystem Software)



> **Efficient operations management** with our partners keeps the price-performance ratio stable despite fluctuating market conditions



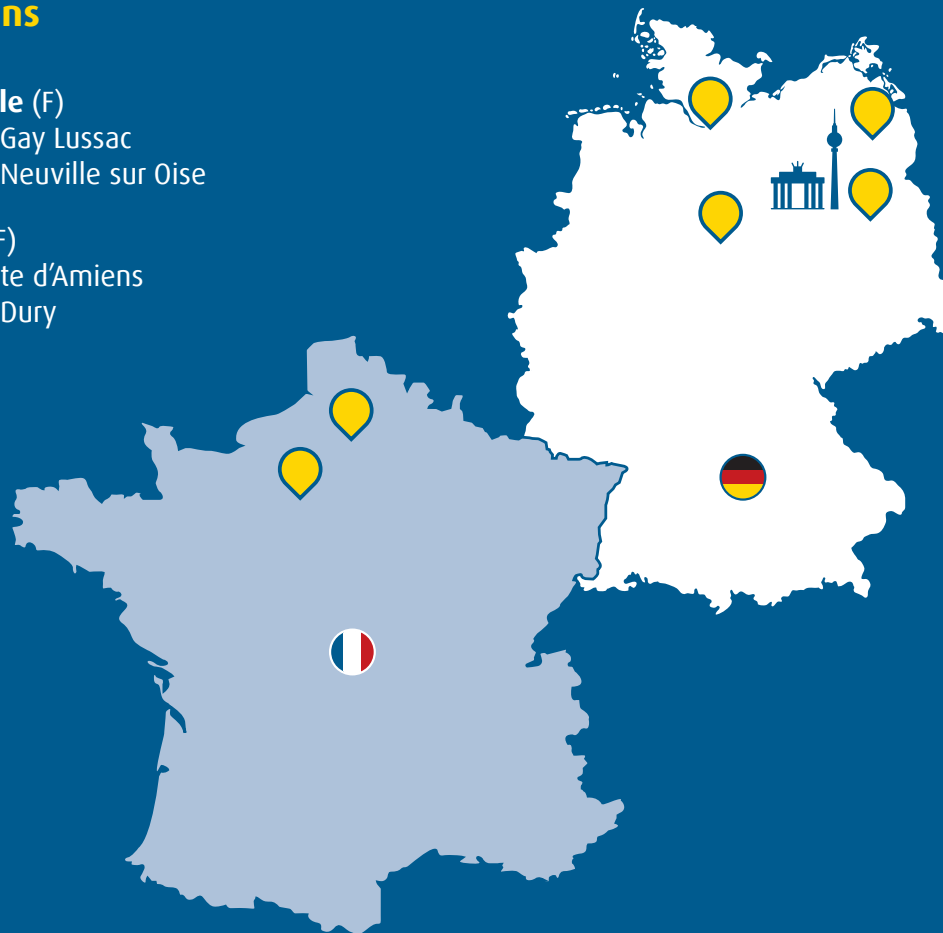
> **Future collaboration topics** include: digitalization, hydrogen, battery storage and operational best practices

There for you



ENERTRAG Operation Locations

- ◆ **Dauerthal**
Gut Dauerthal
17291 Dauerthal
- ◆ **Berlin**
Friedrichstraße 152
10117 Berlin
- ◆ **Edemissen**
Eddesser Straße 8
31234 Edemissen
- ◆ **Hamburg**
Karnapp 25
21079 Hamburg
- ◆ **Neuville (F)**
9 mail Gay Lussac
95000 Neuville sur Oise
- ◆ **Dury (F)**
26 Route d'Amiens
80480 Dury



Ready to operate your renewable energy projects in Germany, France and Poland.

Contact

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DIN EN ISO/IEC 17020 accreditation from the German Inspection Body (DAkkS) which covers the specifications contained in attachment D-IS-18273-01-00 to the accreditation.



Certified to ISO 9001 2015 quality management.