

A LEADING EUROPEAN UTILITY

Wind Services



JUVENT

 **BKW**

ENERGY

BKW has been active in renewable energy business since 1992 and currently owns over 500 MW of wind assets throughout Europe, offering extensive expertise to its customers through a full range of wind services.

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BKW is the right partner for you

Owner perspective, Swiss quality and modular range

The **BKW Group** is a Swiss-based international energy and infrastructure company that employs over 10,000 people.

BKW has been **active in wind business since 1996** and currently owns **over 500 MW** of assets throughout Europe, offering extensive expertise to its customers through a **full range of wind services**.

At present, **BKW is implementing its strategy to further grow its portfolio** of assets and services in relevant markets with the aim of becoming a **leading European player in renewable energy**.

Our Services

Technical & Commercial Management (TCM)

- Plant performance management
- Commercial and energy management
- Project development
- Due Diligence and transaction support
- Tailor-made services

Digital Services

- Real-time monitoring and reporting
- Budget follow-up
- Production planning and forecasting
- Failure prediction and prevention
- Remote operations

Operation & Maintenance Services (O&M)

- WTG scheduled and unscheduled inspection and maintenance
- Major component management
- HSE services and safety equipment
- Rotor blades services
- Availability guarantee

Energy Management & Trading Services

- Energy management
- PPAs
- Direct market access
- Direct marketing
- Reporting and forecasting



Operation and Maintenance (O & M)

As a long-time asset owner, BKW can help you get the best possible yield from your assets. With our local presence, skilled personnel, enthusiasm and solid organisation, we can provide service packages tailored to your specific needs.

Service modules for a tailor-made package offer



Scheduled Inspection & Maintenance

Our on-site technicians ensure the smooth running of your wind farms and respond immediately in case of faults. We use state-of-the-art, innovative maintenance techniques to identify and resolve faults quickly and keep production losses to an absolute minimum.



Troubleshooting, Unscheduled Maintenance & Repairs

Our technicians ensure quality service and rapid response time for unscheduled maintenance interventions. This covers any kind of fault that requires call-out, including labour, supply and/or exchange of spare parts, expenses and all required tools. Does not include damage to major components.



Major Components Management

With our centralised procurement department and local service points we can manage replacement and repair of major components. This includes major components supply (gearbox, generator, transformer, blade, etc.) and hydraulic oil exchange using certified trucks.



HSE Services and Safety Equipment

We apply the highest standards of safety and quality for our customers, with multiple certifications across international markets. Our services include calibration of hydraulic and electric screwdriving technology, ladders and climb assist systems, rescue equipment, service lifts and PPE inspection.



Rotor Blades Services

We deliver a full range of inspection, maintenance and repairs of all type of rotor blades using Sky Climber or ropes. Focal areas include crack and delamination repair, and cleaning of drainage holes.



Availability guarantee

We guarantee availability based on the condition of the WTG (age, type, location), with monthly and annual evaluation of technical and/or energetic availability and production data.



Our advantages

- Qualified, experienced personnel
- High quality, professional service
- Dedication and reliable performance
- Modularity and wide range of services
- State-of-the-art maintenance techniques

Technical and Commercial Management (TCM) & Due Diligence

Proxima provides services in management, supervision and optimisation of energy production and consumption. With over 30 years' experience in the renewable energy industry, our management team offers best-in-class professional and technical skills to help clients increase efficiency in their energy plant management. Active in 6 countries (CH, IT, DE, FR, NO, SE), we manage close to 1 GW of wind and solar plants.

Project Development

Late-stage development and construction management for renewable energy projects (turnkey) including transaction support, financing, tendering, contract management, local site management and HSE responsibility, construction owner representation

Technical Management

Plant monitoring and active control, performance analysis, site inspection, maintenance and repair management, health and safety compliance and stakeholder management

Commercial Management

Finance and accounting including tax declarations, reporting, contract and claim management, permits, procurement of services and deliverables, real estate and risk management

Energy Management

GSE relations management, compliance checks, advisory on energy sales and market participation, optimisation of power supply costs, energy sale via power purchase agreement (PPA), optimised handling of energy purchases

Due Diligence & Transaction Support

Assessment of plant operations, analysis of technical, contractual and commercial issues, transaction support for renewable energy plants, active portfolio scouting

Tailor-made services

Regulation monitoring, tender processing, legal, financial and strategical consulting, investment scouting, asset analysis and optimisation

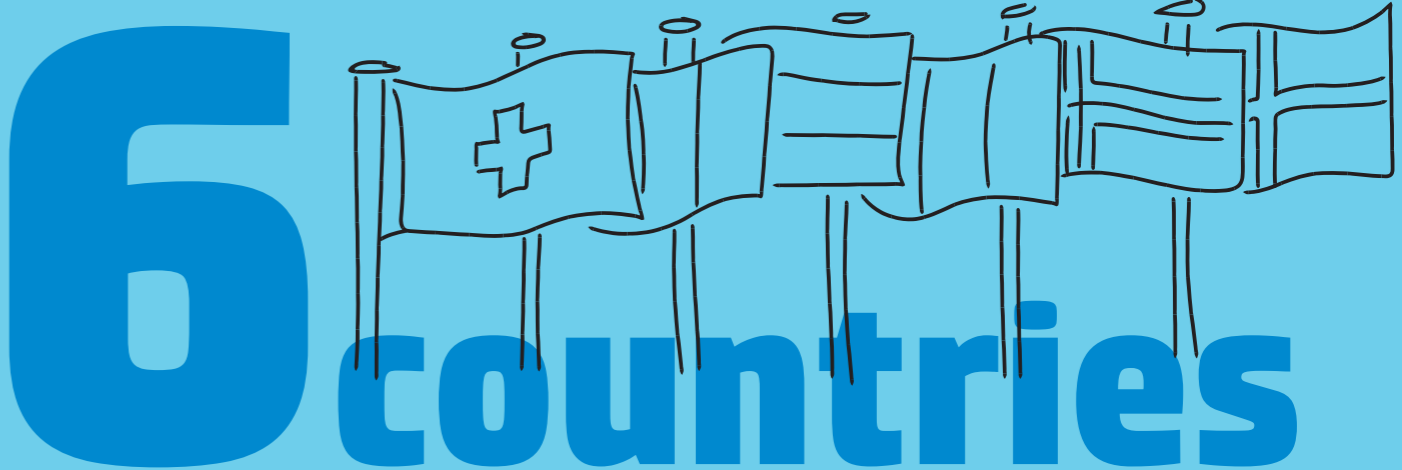


PROXIMA
Close to your energy



30 years

experience in the renewable energy industry



6 countries



1 GW

of wind and solar managed plants

Wind-Log: The monitoring dashboard for your wind park

Wind-Log is a modular web-based asset management platform for wind technology that transforms real-time raw data into actionable insights.



Supports TCM with...

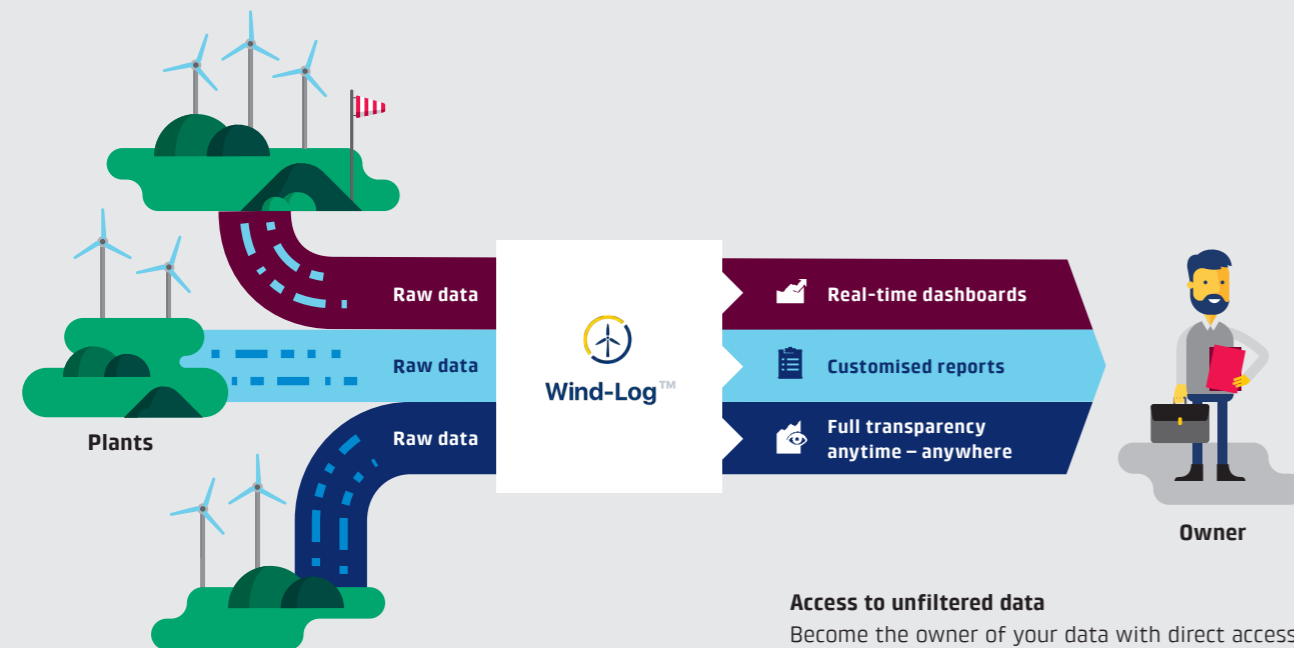
- An informed and independent view
- All data in one place
- Real-time dashboards
- Fully customisable and automated reports

Enhances O&M with ...

- 24/7 condition monitoring on more than 20 WTG components to allow transition from run-to-fail approach to predictive maintenance
- Workflow optimisation combining production forecasts and maintenance intervention

Maximises revenues by conveying enriched data to traders with ...

- Real-time production
- Weather forecasts
- Unplanned maintenance interventions
- Site-specific data simulations



Access to unfiltered data
Become the owner of your data with direct access independently from OEM Scada.



Desktop Application

A user-friendly and web-based application allows the user to get an informed and independent view on the performance of his portfolio, parks and turbines in real-time.



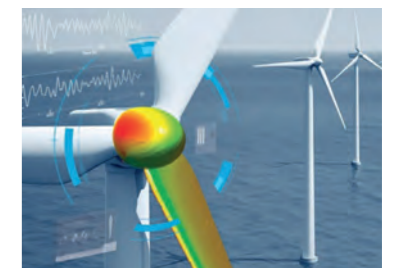
Mobile App

The mobile app puts the relevant asset portfolio information at the customer's fingertips, anytime, anywhere.

Wind-log is developing machine learning algorithms in cooperation with csem.



(www.csem.ch) is an award-winning Swiss institute in the field of machine learning and artificial intelligence under the banner of Industry 4.0.



Wind-Log: A complete suite of modules to fulfill all customer needs



Monitor

- Monitors real-time performance at portfolio, park and turbine level
- Monitors turbine component condition
- Overview of open alarms
- Identifies anomalous trends in component behaviour



Maintain

- Enables weather-optimised maintenance planning
- Automatically generates availability information
- Overview of future and past maintenance events, including storage and sharing of maintenance records



Analyze

- Analyses performance at portfolio, park and turbine level over a selected period
- Power curve analysis
- Key performance indicators



Forecast

- Production forecast for each wind park based on physical models (incl. weather forecasts) and machine learning
- Weather alerts for maintenance and plant limitation management



Overview dashboard

- Provides an overview over the entire wind park portfolio, making it very easy to identify problems at a glance



Mobile App

- State-of-the-art mobile app for iOS and Android
- Provides production, alarm and budget information about the portfolio at any time
- Intuitive interface



Budget follow-up

- Budget follow-up at portfolio, country and park level (revenues, production)
- Daily overview of production and production losses
- Daily overview of revenues and revenue losses



De-ice

- Optimises the usage of blade heating in cold environments using weather data and specialised asset management know-how



Report

- Creates fully customisable reports
- Automatic generation and distribution of reports to a recipient list, defined by the client



Data Studio

- Allows the user to download operational data in Excel or csv format in time series of 30 sec or 10 mins
- Allows the user to preview pre-defined data analysis results
- Data can be downloaded for a single turbine or for an entire wind park



Operate (coming soon)

- Turbine start from remote
- Turbine stop from remote
- Alarm reset from remote



Predict (coming soon)

- Improves production forecasts using machine learning algorithms
- Early failure detection based on machine learning algorithms that analyse past performance



Why BKW?



We are asset owner

As a long-term asset owner BKW has learned how to optimise its operations.

That's why we understand our customers' needs and the best practices that will maximise their investment yield.



Single point of contact

Complete coverage of the entire service value chain creates synergies and efficiency.

A modular service range is always available.



We are independent

Access to raw data and an alternative sourcing strategy offers the end customer complete independence from OEMs.

We offer multi-brand and international services.



We are Digital

Its digital competence and presence along the entire value chain ...

... allow BKW to adopt innovative and preventative service strategies.

Imprint

Editing

BKW Group Communications, Bern

Design

Solid Identities GmbH, Zürich
www.solid-identities.ch

Photography

Michel Jaussi, Linn
www.jaussi.com

Printing

Vögeli AG, Langnau i.E.
www.voegeli.ch



Locations

- 1 Main office**
BKW Energie AG
Viktoriaplatz 2
3013 Bern
Switzerland

+41 58 477 51 55
www.bkw.ch
- 2 Proxima Italia**
Via dei Pellegrini 14
Milano (IT)
- 3 Proxima Solutions**
Ehrenbergstr. 19
Berlin (DE)

Proxima Germany
Ehrenbergstr. 19
Berlin (DE)
- 4 Proxima France**
Rue Taitbout 13
Paris (FR)
- 5 Proxima Scandinavia**
Maridalsveien 91
Oslo (NO)
- 6 Baju Energy**
Marie Curie Str. 5
Eberswalde (DE)
- 7 BKW Italia**
Via Fara 26
Milano (IT)
- 8 BKW Italia**
Via Francesco Nitti
Troia (IT)

