Electrical and Industrial Solutions for Wind Turbines

The American Recovery and Reinvestment Act (ARRA) envisions a more energy-efficient, up-to-date America. Investing in alternative energy sources like wind power is part of that vision.

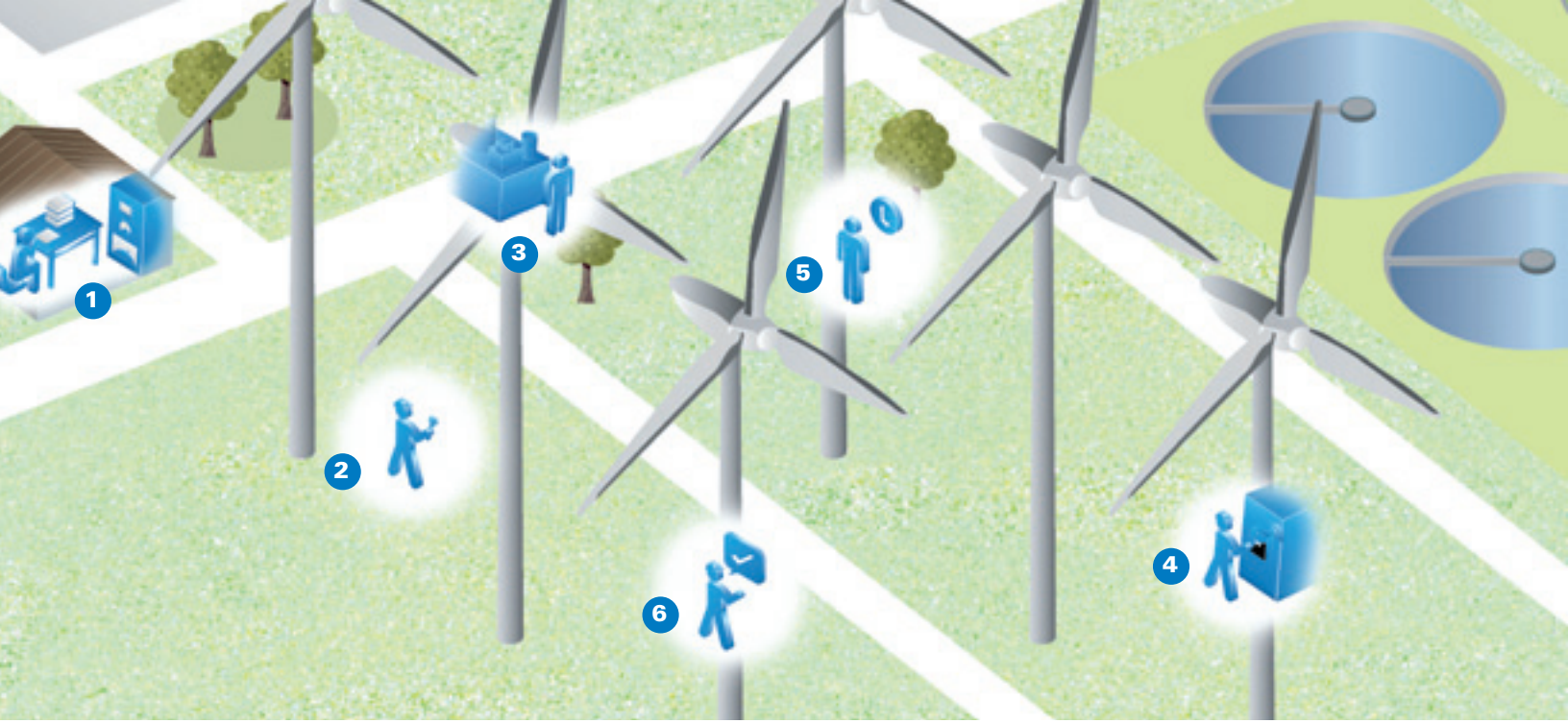
As a method of generating electricity, a wind farm presents challenges. It requires a complex collection of equipment that must work together effectively to generate electricity and transmit it to the utility grid. Because wind farms are often located in remote areas far from urban services, monitoring and maintaining equipment can be complicated.

Eaton has the solutions you need to meet those challenges. Our services and solutions can help your wind farm operate more reliably, cost effectively and safely.

Eaton solutions for wind power include:

- ANSI/IEC switchgear
- Rack Mount Uninterruptible Power Supply (UPS)
- Integrated Power Assembly (IPA)
- Metal-Enclosed Front Accessible (MEF) switchgear
- Enclosed breakers
- Low or medium voltage switchgear
- Installation services
- Commissioning services
- Retrofit upgrades and service
- Hydraulic pitch control, including:
  - Cylinders
  - Power units
  - Pumps and motors
  - Proportional and screw-in cartridge valves
  - Oil filtration and breather systems
  - Hose and fittings
- Hydraulic disc and caliper brakes

EATON
Powering Business Worldwide



Our industry-leading products and services are designed to deliver:

- Energy Efficiency
- Reliability
- Safety
- Cost Effectiveness

1
Simplify inventory

Many wind farm developers operate facilities inside and outside the U.S. That can mean working with American National Standards Institute (ANSI) standards for some equipment and International Electrotechnical Commission (IEC) standards for other equipment. Eaton's globally certified components meet both ANSI and IEC standards, allowing customers to lower inventory levels with one global design scheme based on a single part number. Our vast North American distribution network can supply parts when and wherever needed.

- ANSI switchgear
- IEC switchgear

2
Skilled field service

Eaton's Electrical Engineering Support Services throughout the U.S. provide support in the field for components manufactured by both Eaton and other electrical manufacturers. Eaton's Hydraulics Application and Commercial Engineering teams offer on-site services for Eaton hydraulics products, which are also supported by distributors providing local service to wind farm owners and operators.

- Installation services
- Commissioning services
- Maintenance services
- Retrofit upgrades and service
- On-site custom solutions and services

3
Durable, reliable components

Wind farm operators require extreme reliability and durability, particularly in harsh environments. Eaton power units, along with control valves and hydraulic cylinders, optimize the pitch angle of turbine blades, and thereby power production, while limiting loads on the turbine structure. Eaton disc and caliper brakes bring the turbine to a safe and complete stop.

- Control manifolds
- Proportional valves
- Screw-in cartridge valves
- Servo actuators
- Tie-rod cylinders
- Hydraulic discs
- Caliper brakes

4
Solutions customized for you

Off-the-shelf equipment may not precisely match a wind farm's power needs, making it more costly or inconvenient to install and use. Eaton's Satellites and Service Centers can customize equipment like breakers, enclosed breakers, safety switches and low/medium voltage switchgear to your exact specifications, often saving installation cost or making maintenance easier.

- Enclosed breakers
- Low or medium voltage switchgear

5
Around–the–clock performance

Wind turbines must perform around the clock. Eaton's engineering team will work with you to design an optimal hydraulic system featuring Eaton heavy-duty pumps and motors that work in concert with a well-designed hydraulic filtration system, which helps eliminate contamination and system downtime. Our hydraulic hose options offer superior flexibility, strength and ease of assembly.

- Vane pumps
- Piston pumps
- Filters
- Reservoir breathers
- Hose and fittings

6
Keep controls operating

Brownouts or blackouts may stop a wind turbine, but the turbine's controls need to keep operating. Eaton Uninterruptible Power Supply (UPS) solutions keep electricity continuously flowing through turbine controls, even when the turbine's not moving.

- Uninterruptible Power Supply (UPS)

ACT NOW!
Eaton Recovery Hotline
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