Vestas®

VestasOnline®

Power Plant Controller

Wind. It means the world to us.™

Dedicated for wind power plants.

Worldwide grid code compliance

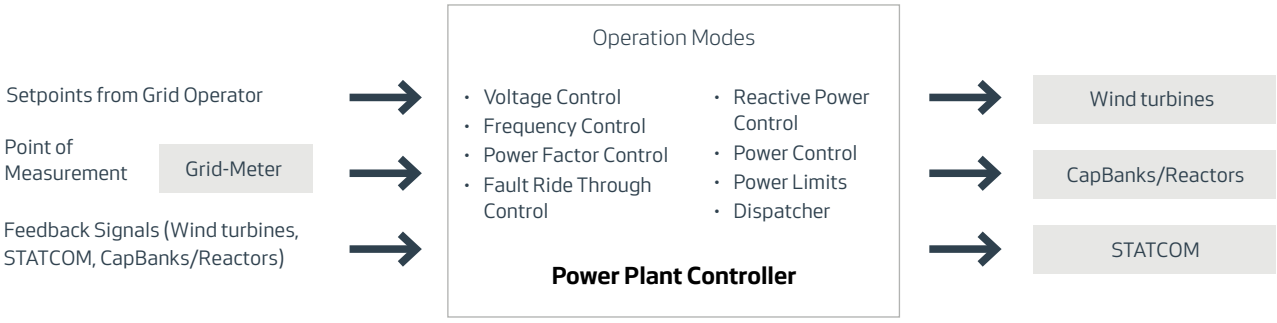
The VestasOnline® Power Plant Controller is the first controller on the market fully dedicated to wind power plants. This state-of-the-art technology secures worldwide grid compliance at the Point of Common Coupling for all known grid codes.

Fast, reliable real-time control with multiple control functionalities

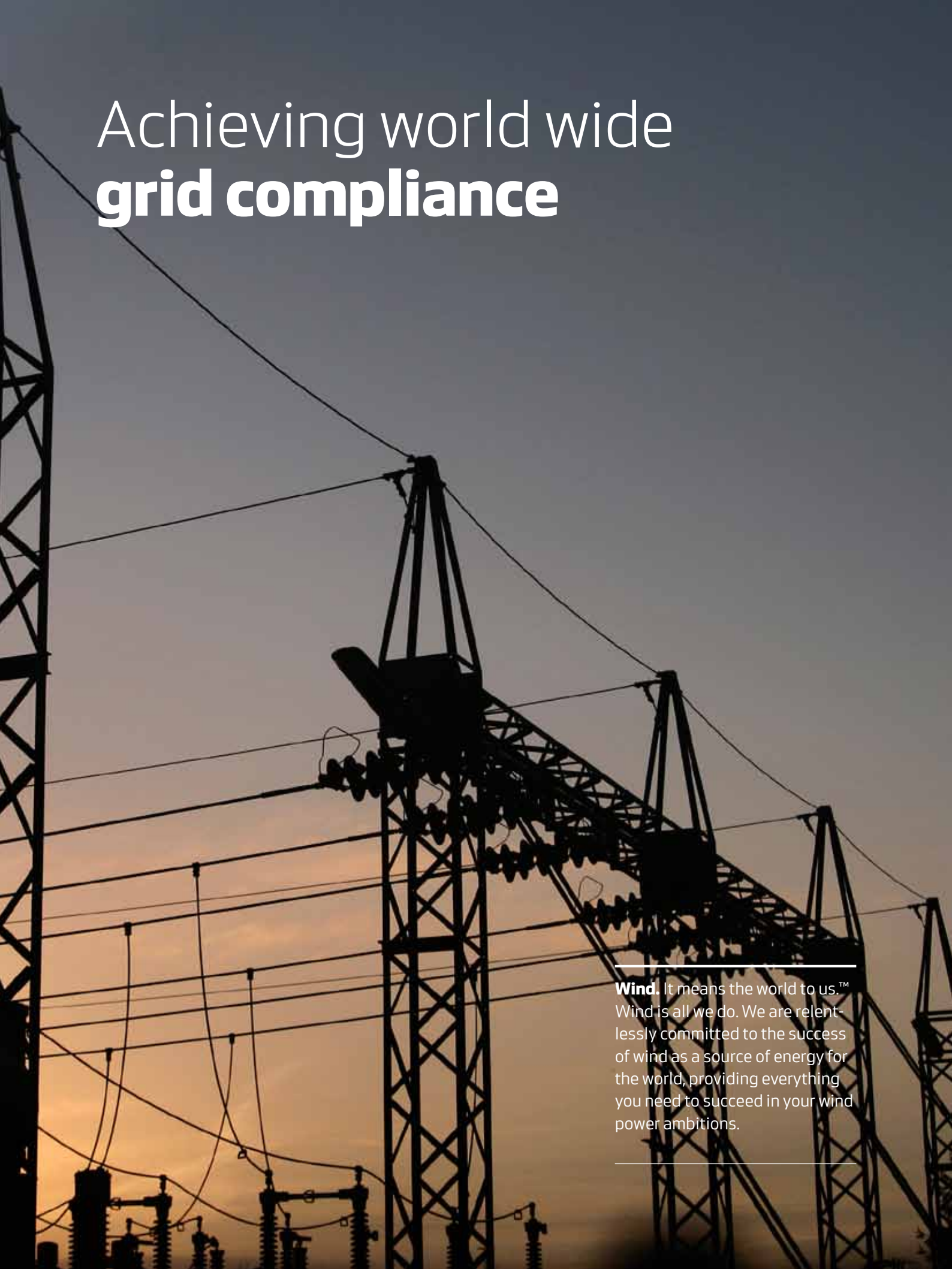
VestasOnline® Power Plant Controller (PPC) controls the output of the wind power plant at the point of common coupling. Working independently of the SCADA system, VestasOnline® PPC accurately monitors and controls each wind turbine. It allows the following real-time control

- Power factor or reactive power closed-loop control (two options)
- Voltage closed-loop control
- Active power closed-loop control, curtailment, derating, ramp-rate limitation
- Frequency control (three options), governor response
- Fault ride-through coordination

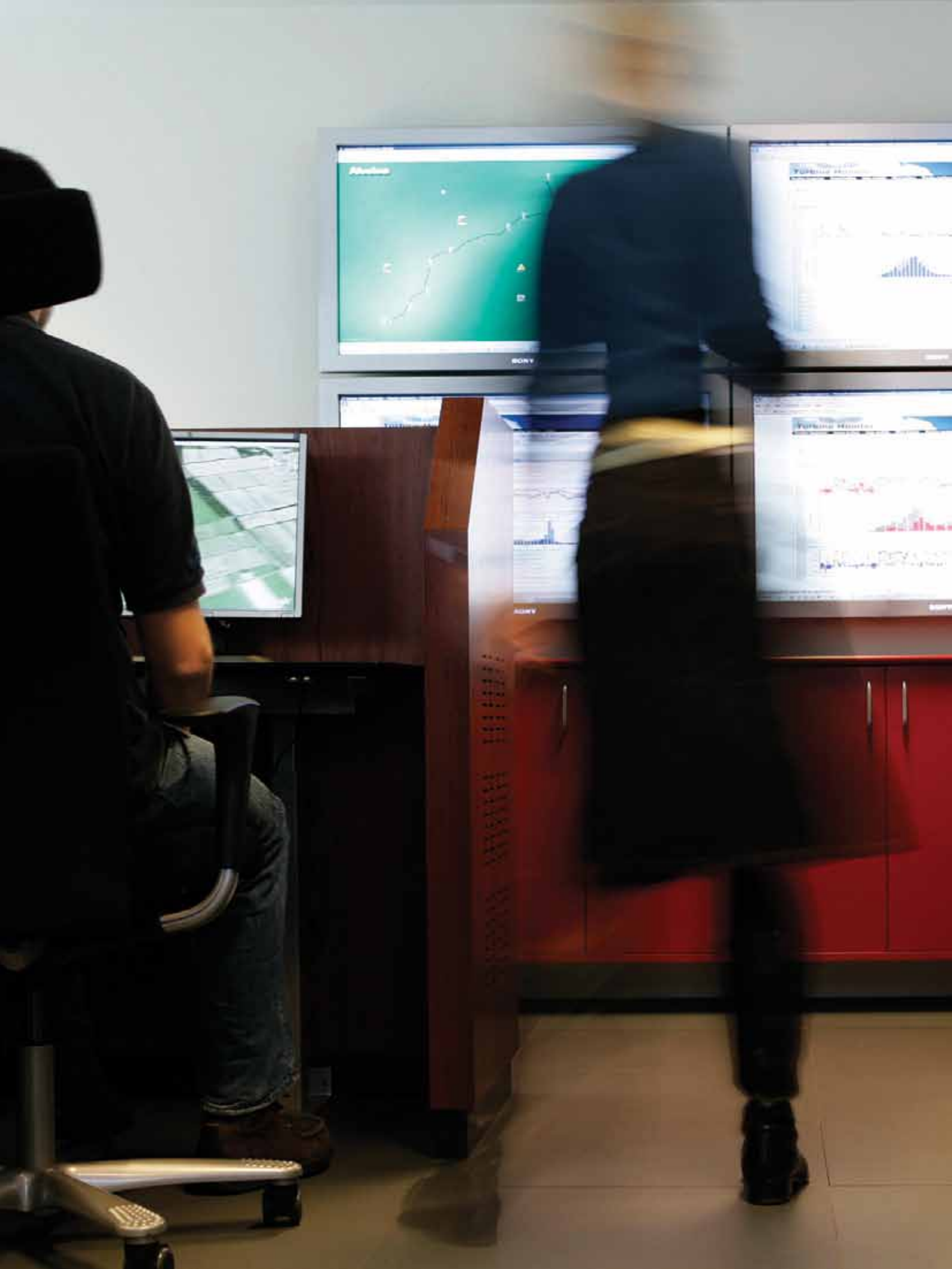
The VestasOnline® Power Plant Controller is fully scalable, and features customisable configuration, allowing you to implement any control concept needed to meet local grid requirements.



Achieving world wide **grid compliance**



Wind. It means the world to us.™ Wind is all we do. We are relentlessly committed to the success of wind as a source of energy for the world, providing everything you need to succeed in your wind power ambitions.



The controller ensures real-time **power plant control**

160

turbines can be controlled by one single VestasOnline® Power Plant Controller and up to 160 turbines

Transient Fault Recording

VestasOnline® PPC provides a grid measurement system that continuously logs all parameters, such as RMS, harmonics, waveforms flicker, and frequency. Through grid measurement, VestasOnline® PPC provides Transient Fault Recording for performance and post-fault analysis, including web server and remote monitoring capabilities.

Simple lifecycle management

Based on a standard, well-proven Programmable Logic Controller (PLC) platform, VestasOnline® PPC is designed for reliability, easy installation, service and maintenance.

A scalable, modular solution

The VestasOnline® PPC is a fully integrated solution, supporting data acquisition and control of all wind power plant components. This includes interfaces to third-party equipment via various industry protocols.

Every power plant has different specifications and output requirements. VestasOnline® PPC is customisable to meet the specific needs of your site and project and due to the small hardware footpring it can be installed either in a turbine or in a control room

A single VestasOnline® PPC can control up to 160 Vestas wind turbines.

Three **tailored** control options

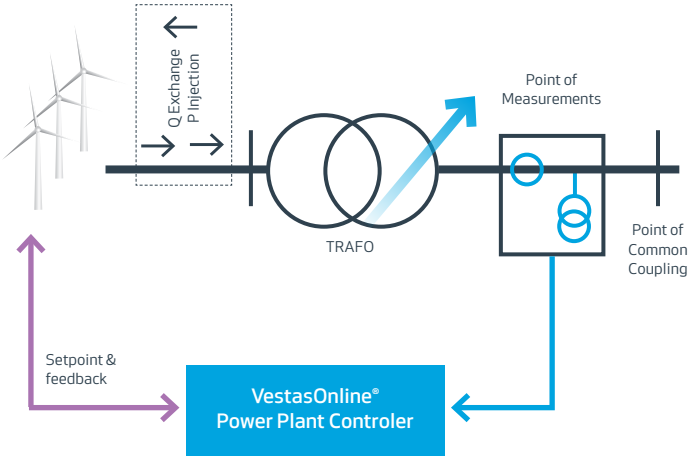
To meet the needs of different plants with different configurations, we offer three solution options – all based on the same hardware. They are tailored to the grid code requirements for electrical performance at the Point of Common Coupling, ensuring compliance for all known grid codes worldwide.

VestasOnline® Power Plant Controller

- Worldwide wind power plant grid code compliance
- Fast, real-time control of wind power plants with multiple control functionalities
- Scalable and modular
- Strengthens your business case

Option 1: Control architecture with turbines alone

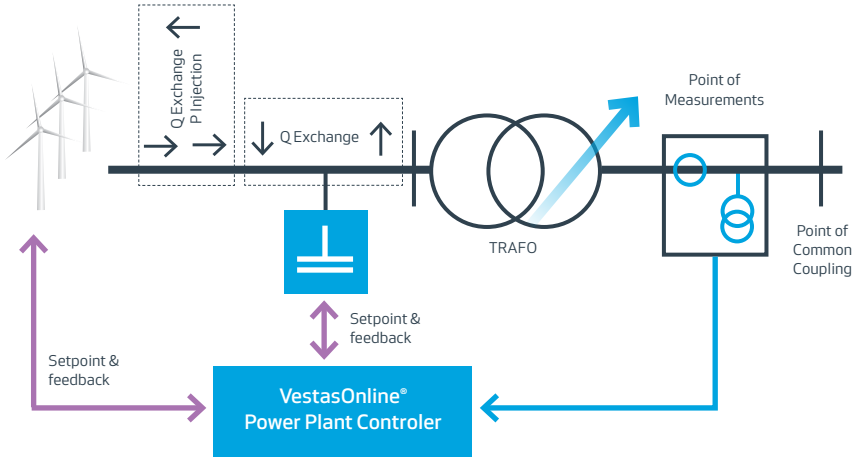
In cases where the WTG is allowed to inject reactive power into the grid, and the required maximum power factor capactive in the PCC is close to 1.0, then a simpler power plant structure including only WTGs controlled by the PPC may be capable of fulfilling the grid code in respect to V/Q requirements.



Power
Control
Measurement

Option 2: Control architecture with WTGs and MSCs

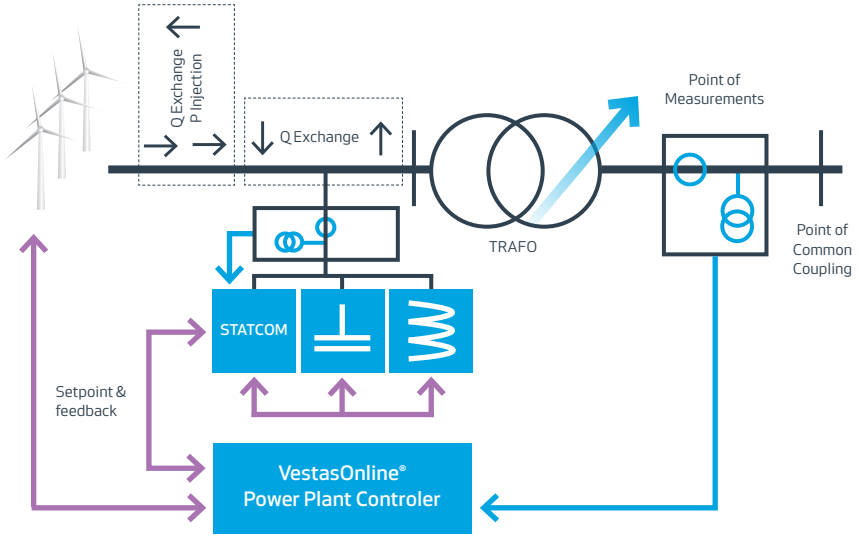
Switched capacitors banks can be installed at the collector bus when the grid code in question requires more reactive power than the one available from the WTGs at the PCC. Vestas has developed control algorithms aimed to harmonise the combined operation of the WTGs and MSCs together. These algorithms can be even voltage control of the power plant, if the grid code allows the use of capacitors for such purpose.



Power
Control
Measurement

Option 3: Control architecture with turbines and STATCOM (including MSCs and MSRs)

Static compensation equipment or STATCOMs can be installed by the PPC in the same manner as the turbines when the grid code requires more reactive power than the WTGs can inject as well as fast dynamic performance in the PCC. It is customary to divide the STATCOM and the WTGs. In this architecture the STATCOM is controlling the MSCs and MSRs installed in the system.



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