



## Certification of power generation units and plants

In recent years, there has been a significant increase in the number of power generation plants (PGP) based on renewable energy sources. In addition to photovoltaics (PV) and wind power, these also include biomass or biogas-fired combined heat and power plants (CHP) or hydroelectric power plants. Industry experts predict that the share of renewable energies in the overall energy balance will continue to increase in the coming years.

This increasing growth presents new challenges for the energy industry. In order to guarantee the stability and security of the energy supply, many European countries have defined corresponding grid access regulations. These stipulate a minimum of electrical properties and must be complied with by future energy producers.

As your dynamic, independent and competent partner, VDE Renewables validates the grid conformity of your power generation unit (PGU) or your PGP according to the respective grid access regulations (grid codes).

In Germany, there are different grid codes according to the grid voltage level, which are shown in the following table:

Voltage level	Grid Code	Testing and certification standard
Low voltage	VDE AR-N 4100 / 4105	VDE 0124-100
Medium voltage	VDE AR-N 4110	FGW TR3, FGW TR8
High voltage	VDE AR-N 4120	
Extra high voltage	VDE AR-N 4130	

VDE Renewables and its partner laboratories offer testing and certification services to enable qualified testing and certification of your PGU, PGP or any relevant components.

## Connection of the PGU or PGP to the power supply network

The manufacturers of PGU or the operators of PGP are responsible for complying with the requirements of the respective network access regulations. The verification is generally carried out through a three-stage process:

1. The manufacturer of a power generation unit (PGU) must prove compliance with the requirements of the respective valid grid access regulation by means of a type test on the PGU. These type tests are based on test standards derived from the grid access regulations. Passing the type test and a validated calculation model of the PGU are the basis for issuing the **unit certificate**. Only PGUs with valid unit certificates are approved for grid operation in Germany.
2. The operator of a power generation plant (PGP) must prove the requirements of the respective grid access regulations within the framework of the so-called **plant certificate**. A prerequisite for this verification procedure is the above-mentioned unit certificate of the PGU of the relevant PGP.

In the case of PGU whose individual measurement within the scope of the unit certificate becomes uneconomical, e.g. due to excessive output, the plant certificate can then be issued through an **individual verification procedure**.

3. After certification, construction and commissioning of the PGP, the required **declaration of conformity** is issued: This is the proof that the PGP was built in accordance with the specifications of the installation certificate.

## Component certification

In addition, independent **component certificates** are available for system-relevant components (e.g. grid and system protection, PGP controllers, voltage controllers and exciter systems of synchronous generators). It is largely mandatory to use only certified components in the PGP.

## Contact us

Please contact us if you have any questions regarding the approval of your PGU, PGP or relevant components. We can advise on the grid access conditions of Germany as well as those of a large number of countries around the world.

The many years of experience, the impartiality and extensive connections of our experts serve as the basis of our strong expertise in the field of grid conformity. We look forward to support you.

### VDE Renewables GmbH

Siemensstrasse 30  
63755 Alzenau | Germany  
Phone +49 69 6308-5300  
Fax +49 69 6308-5320  
renewables@vde.com  
[vde.com/renewables](https://vde.com/renewables)

