



## Conformance Testing at VHPready 4.0

VHPready Services GmbH supports your development of VHPready conforming communication gateways. Based on its test environment TÜV Rheinland tests and assesses conformance of dedicated data points to the VHPready 4.0 standard. This enables reliable exchange of data between systems of various suppliers in Virtual Power Plants and Smart Grid Solutions.

### System Architecture of VHPready

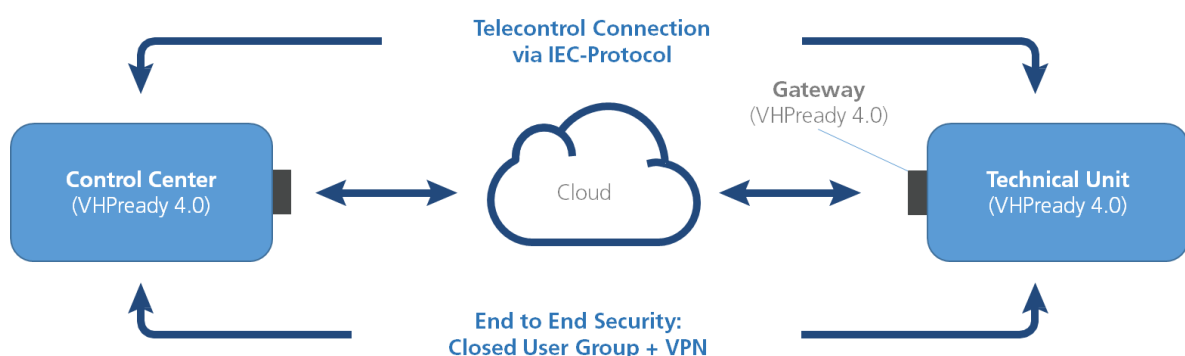
VHPready provides the basis for the flexible integration and aggregation of decentralized energy systems within Virtual Power Plants.

The Control Center Gateway hosts a remote access client and a VPN server facing the remote communication channels. The Gateway of each Technical Unit contains a remote access server and a VPN client facing the remote communication channel.

To communicate in a network using VHPready a conforming gateway is needed. It establishes the data transfer via communication protocols specific to the technical unit through the Wide Area Network and ensures physical and cyber security of the data connection.

**Technical Unit Gateways** receive commands from the Control Center in the defined format of IEC 60870 respectively IEC 61850. They are processed by an application logic. The resulting signals are used to trigger according activities of the Technical Units (Modbus RTU is recommended as internal interface).

- **Control Center:**  
Part of the grid system with the purpose of fulfilling overarching control function and coordination with other control systems in the grid.
- **Technical Unit:**  
Core system element consisting of a control unit and a generator/demand/storage unit (Combined Heat and Power, Wind Turbine, battery etc.)



## Benefits

- Conformance with this standard supports smooth and reliable function as well as interoperability
- With growing international acceptance of VHPready, owners and operators of power stations and distribution systems benefit from compliance.



## Services

- Conformance Testing of dedicated areas according to VHPready 4.0 data points together with a review of documents.
- After successful testing a Statement of Test Report will be issued.
- Choice of 15 test cases.
- All measures are implemented by TÜV Rheinland.
- Please ask for customer specific workshops and additional consulting services to support your product development process.

### About TÜV Rheinland

TÜV Rheinland is a leading international technical service provider. Within Industry Alliance VHPready e.V. amongst other members TÜV Rheinland contributes to the development of the test process and test system. In a later phase of the development a certification system covering VHPready 4.0 will be established and initially operated by TÜV Rheinland.

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