



VDE Global Energy Storage Competence Cluster

Your technical competence partner for the global energy transition

- Insurability, Bankability, Investability
- Premium Certification
- Technical Due Dilligence
- Consulting and Training

Our clients come from renewable energy, utility, and automotive industries; as well as from insurance and banking sector.

Industry clients often need their core products to be supported by an energy storage system (ESS). Think of a a renewable energy system combining solar cells with a battery – or a car manufacturer looking into second life and recycling of lithium-ion batteries.

Insurances and banks require technical expertise for quality assurance to reduce the risks associated with energy storage for renewable energy.

What they have in common is the need for expert support as **ESS is not their core business.**

Common challenge:

Is my energy storage system safe and reliable enough to work for the lifetime promised?
What am I doing with the batteries after use in my applications and systems? Dispose, recycle, second life?

Can I certify my system to reduce the risks and obtain favorable loans and insurances?

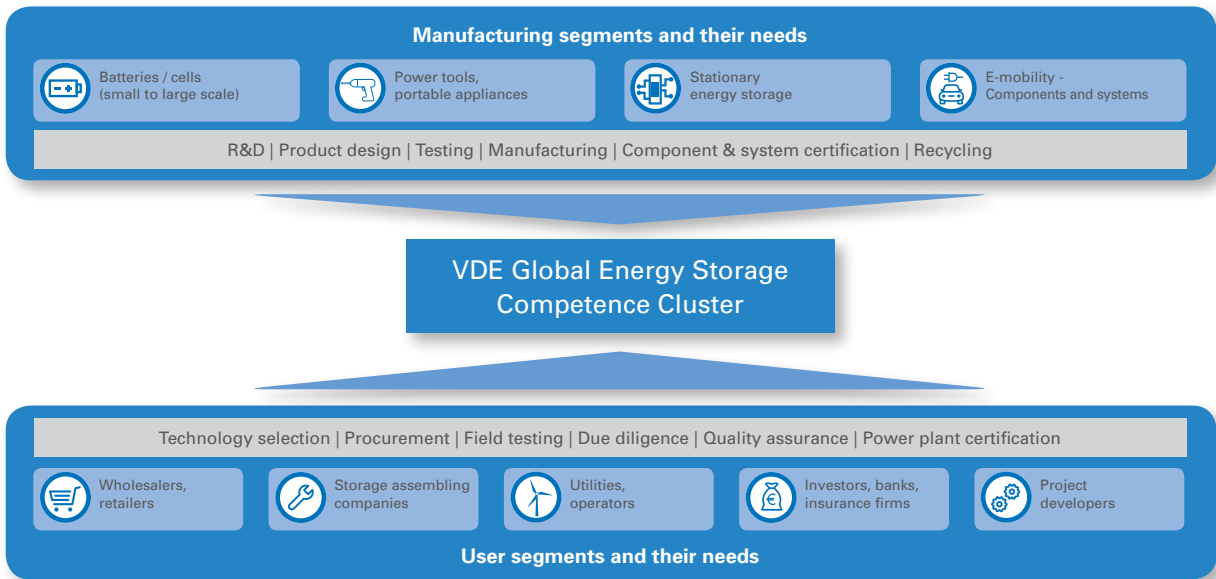
Winning solutions:

Globally **recognized team of battery and ESS experts** especially for lithium-ion batteries
World class laboratories in **Singapore, China, Germany and USA**

Creating additional value and reducing risks through advisory, testing, certification and monitoring

Independent product quality assurance through global competence centers

Technical and financial risk mitigation for energy storage systems



- Consultancy on standards and market access requirements
- Support in creating requirement specifications
- Technical support in the assembly of storage systems
- Development and implementation of in-house quality criteria
- Tailored analysis of battery cells and packs
- Premium certifications based on international standards
- Support in achieving bankability and investability criteria
- Regular and unannounced audits at manufacturers
- End-of-line tests at production lines
- Accident forensics, error analysis for risk minimization

The VDE Pyramid of Quality:

Our guiding principle for development of products and services

The goal of quality assurance is to minimize operational risks and maximize reliability.

We take established international and local standards, important for achieving market access, as **basis**. We expand criteria to consider current market requirements and state-of-the-art developments – this results in

premium certification for bankability and insurability.

Many stakeholders have individual requirements for quality assurance, therefore we offer additional tailored solutions on top of the premium certification. These consider individual requirements and support **unique selling propositions** for the client.

Top-tier layers

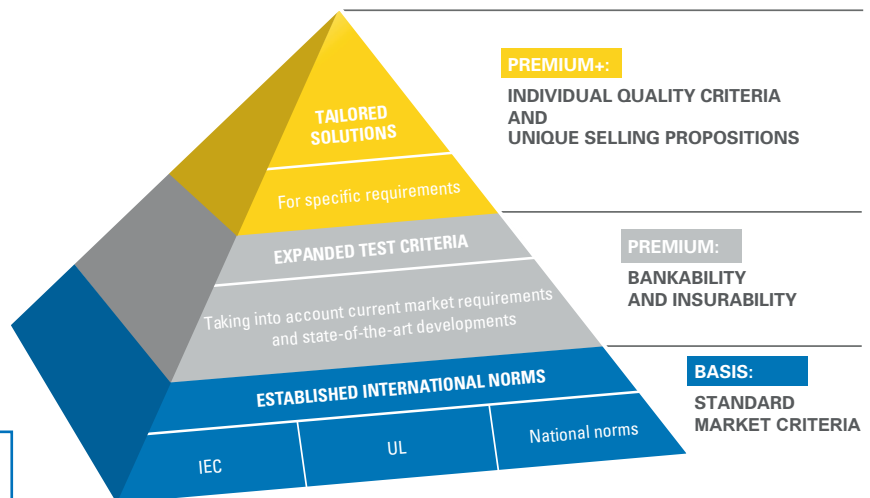
consider unique specifics of a project, engage in superior quality assurance, minimize risks – boost profitability

Competent and responsible businesses

keep pace with state of the art developments, create high-quality, financially sound projects

Companies with short term focus

only follow basic regulations



Your contact:

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