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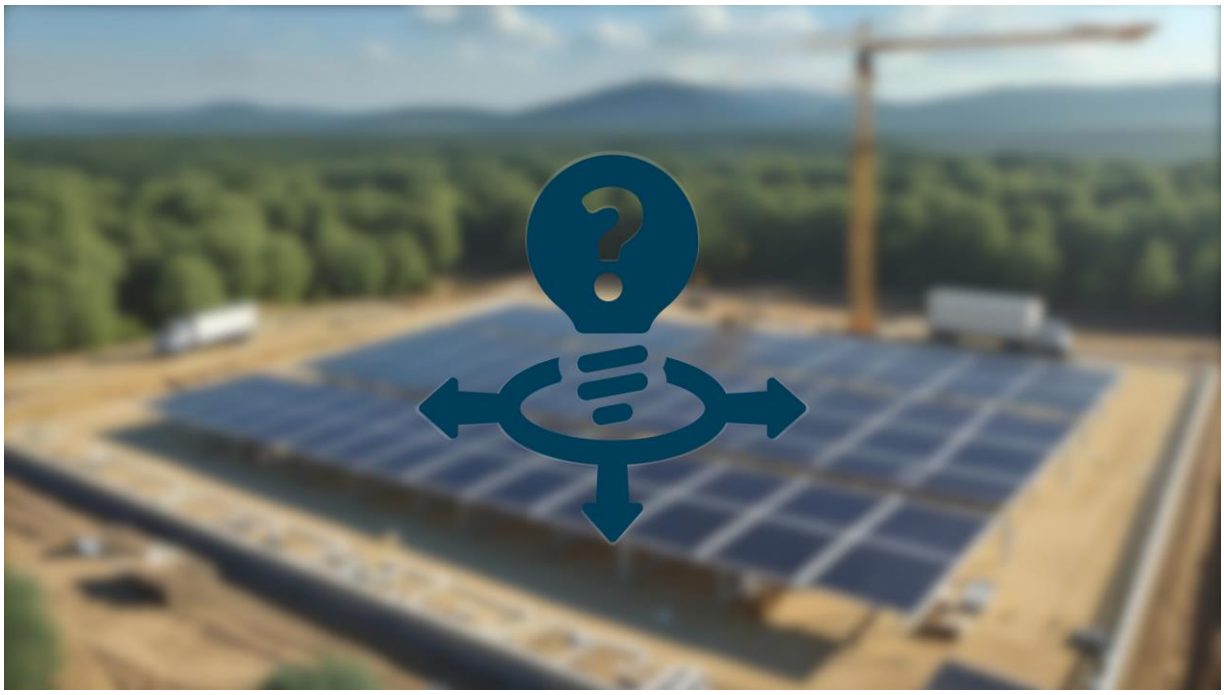

THE 5% RULE – 100% RISK?

WHEN GRID CONNECTION BECOMES A MATTER OF INTERPRETATION

In the first part of this series, we described the grid connection process (Netzanschlussverfahren) as a bottleneck for the energy transition. In this continuation, we take a closer look at one issue that is increasingly causing friction between project developers and distribution system operators (DSOs / Netzbetreiber): the interpretation of the 5% rule for rapid voltage changes (schnelle Spannungsänderungen).

The VDE-AR-N 4110—Germany's medium-voltage grid code—states that rapid voltage changes in the grid must not exceed 5%. This requirement was originally intended for regular switching operations—situations where plants are switched on or off multiple times per day.

In practice, some DSOs now apply this rule to rare switching events as well—such as re-energizing after maintenance work or following protection trips, which may occur only a few times per year. This stricter interpretation means that, in grids with low short-circuit power (niedrige Netzkurzschlussleistung) and large transformers, the limit can be exceeded—even though, under the previous consensus, such cases were considered unproblematic. In the past, a simple note in the plant certificate was sufficient, with no additional technical measures required.

The consequences are significant. Developers lose planning certainty when a plant—designed in line with established standards—is suddenly deemed non-compliant. If additional verifications or even technical retrofits (e.g. inrush current limiters / Einschaltstrombegrenzer) are required, unexpected costs arise.

More importantly, trust in consistent standards erodes. When jointly agreed rules are quietly reinterpreted, the entire financial and technical calculation of a project is at risk.

When Process Risk Becomes Project Risk

In theory, the sequence is straightforward: first certification, then construction. In reality, it's rarely possible. Certification alone takes six to ten months, plus up to five months of waiting for the DSO to provide the documents necessary for certification.

Even before VDE-AR-N 4110 came into force, this situation meant that—despite knowing the procedural risks—component orders (with lead times of up to a year, such as transformer stations) were often placed once the execution design was ready.

Previously, pragmatic solutions—like "letters of no objection" (Unbedenklichkeitsbescheinigungen)—helped bridge small deviations. These letters documented the issue but allowed the DSO to judge its significance. Today, such flexibility is disappearing. DSOs are increasingly rejecting deviations that would have been accepted during earlier project discussions.

Returning to the example of rapid voltage changes, it is now evident that even clear formulations in the standard are being reinterpreted—to the detriment of plant owners and developers.

Grid stability has become a central concern in the age of growing volatile generation. From the DSO's perspective, the technical argument is understandable—especially as long as neither grid expansion nor the urgently needed growth in storage capacity is progressing fast enough.

Still, this trend creates a gap with serious consequences for projects, as key questions remain unanswered:

- Who decides on additional requirements—the certifier or the DSO?
- When do these requirements become binding—upon document submission, certification, or only at final commissioning?
- Who bears the cost if a plant is built but cannot be commissioned?

From the developer's standpoint, retroactively changing approved grid connection conditions is unacceptable. From the DSO's standpoint, ensuring safe operation is non-negotiable. Both positions are legitimate—but they can be reconciled through a clear and consistent process.

Our Conclusion

The technical reasoning of DSOs is understandable—grid stability is essential. But when requirements are introduced shortly before or even after commissioning, it undermines both planning security and the pace of the energy transition.

What is needed now are clear rules and binding communication:

- Early feedback on relevant grid parameters
- Consistent application of the standard, without retroactive reinterpretations
- Clear division of responsibilities between certifiers and DSOs
- Uniform standards that safeguard projects

The interpretation of technical rules must not become a brake on projects. Grid stability and project success are not mutually exclusive—provided all stakeholders act early and transparently.

Note: *This article reflects our practical experience and is not a substitute for legal advice.*

Feel free to contact us if you're planning a project—we'll support you with hands-on expertise.

Read this article in German ***Read our second article***

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