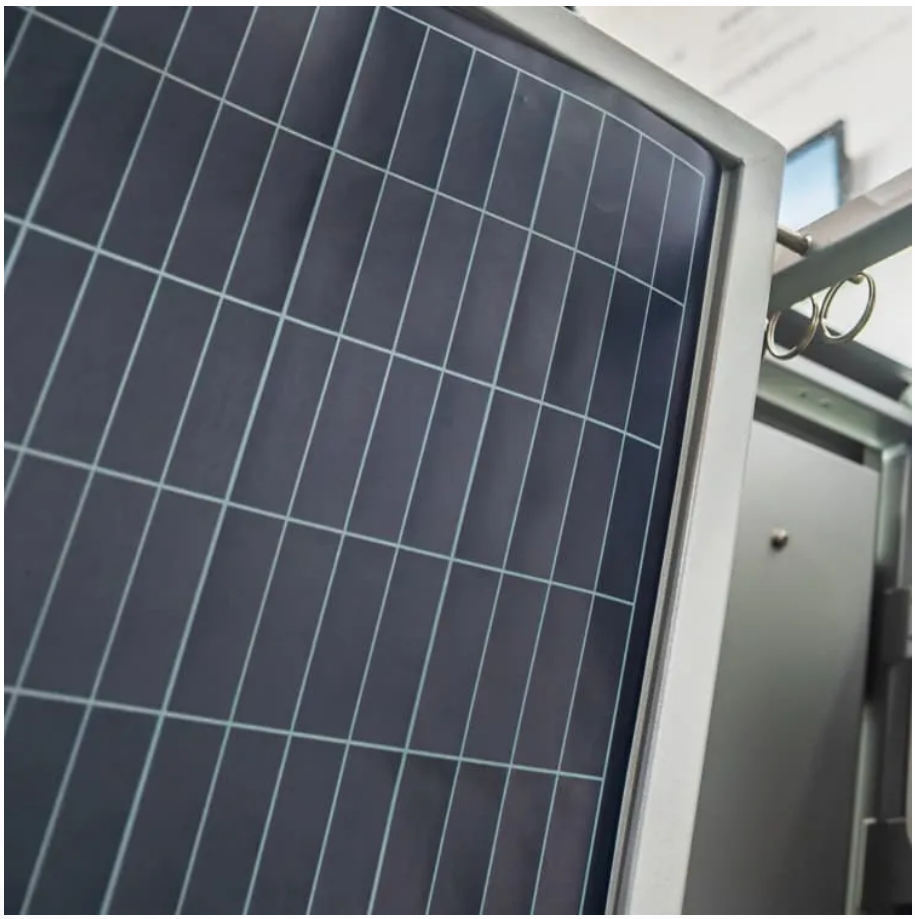
PDEOZE PowerContainer

Ireland Telecom Base Station Inverter Grid-Connected Rescue



Overview

Why do we need an IBR-dominant power grid?

This transition to an IBR-dominant power grid introduces new characteristics, altering how our grid operates. Therefore, the role of IBRs has expanded, requiring them to provide a range of essential services to keep our grid reliable, resilient, and secure.

How will the Irish electricity grid connect to Europe?

It will be the first connection between the Irish grid and Continental Europe. The project will strengthen the security of electricity supply in both countries and facilitate the integration of renewable energy sources into the European electricity grid.

Why do IBRS need a strong grid?

This is because IBRs are asynchronously connected to the grid through a power electronics interface and require a strong grid for synchronization. Most of the control systems of those IBRs rely on the voltage magnitude and angle at their terminals to largely be unaffected by its current injection for stable operation.

Why do IBR controllers fail in the southwest of Ireland?

The high penetration of IBRs in the southwest of Ireland decreases the electrical system strength in this region, i.e., the sensitivity of the IBR’s terminal voltage to variations of current injections becomes higher. This can result in IBR controllers having adverse reactions that could affect system stability.

Can EPRI regc_C detect instabilities in low short circuit networks?

This paper presents results of a case study on Ireland’s system using EPRI’s REGC_C generic positive sequence model to detect potential instabilities that may arise when IBRs operate in low short circuit networks. Using GSAT, we

were able to identify WFs connected to nodes with low short circuit MVA.

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