

# On the Definition and Applicability of Key Performance Indicators for Evaluating the Performance of Smart Grid Concepts

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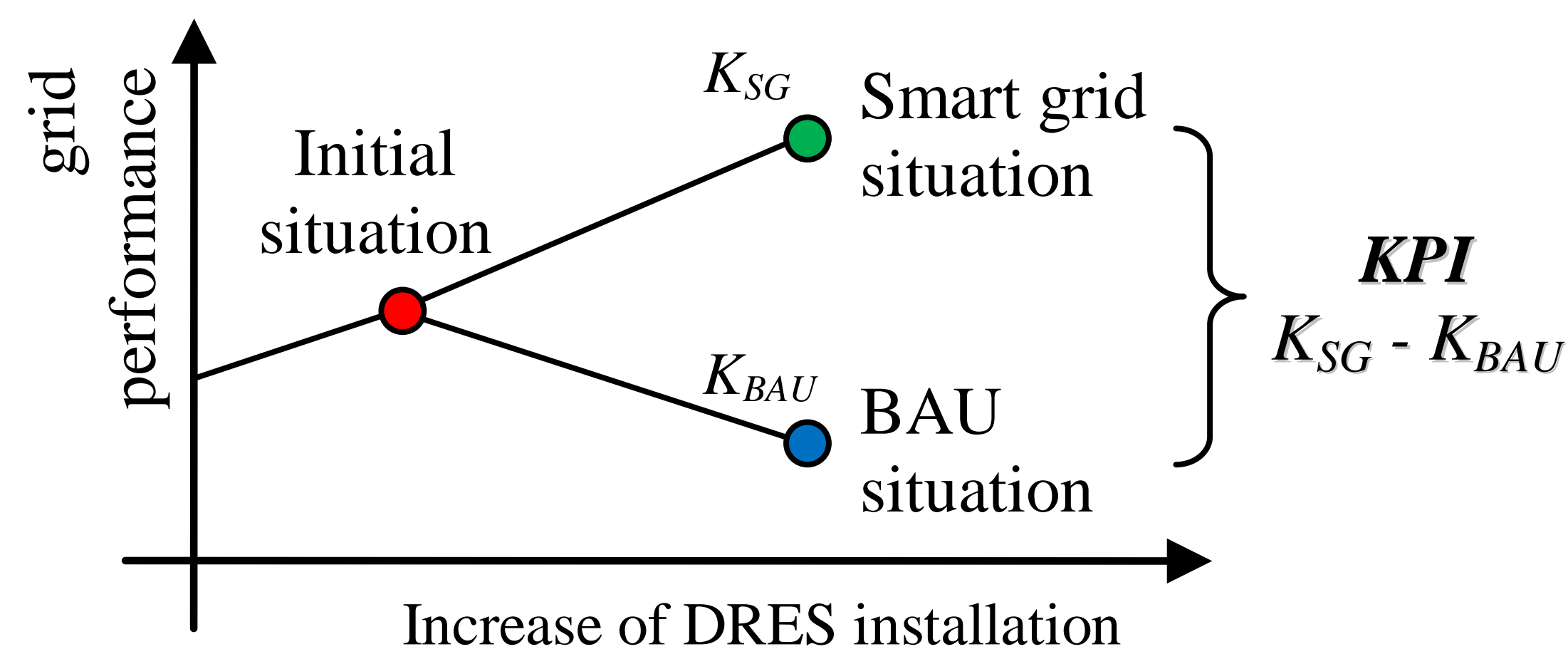
## IGREENGrid

Integrating Renewables in the European Electricity Grid

IGREENGrid focuses on **increasing the hosting capacity for Distributed Renewable Energy Sources (DRES)** in power distribution grids without compromising the reliability or jeopardizing the quality of supply.

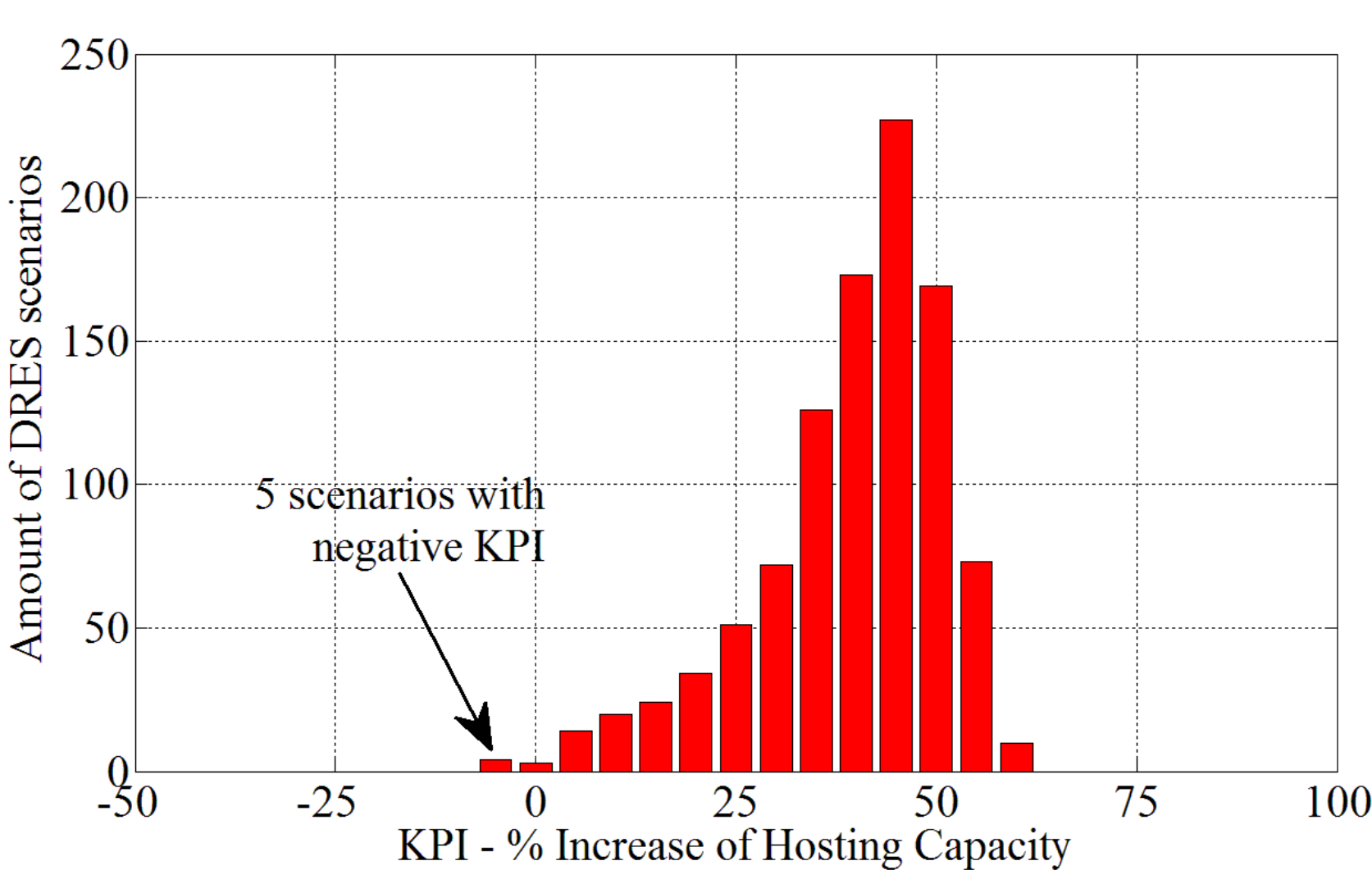
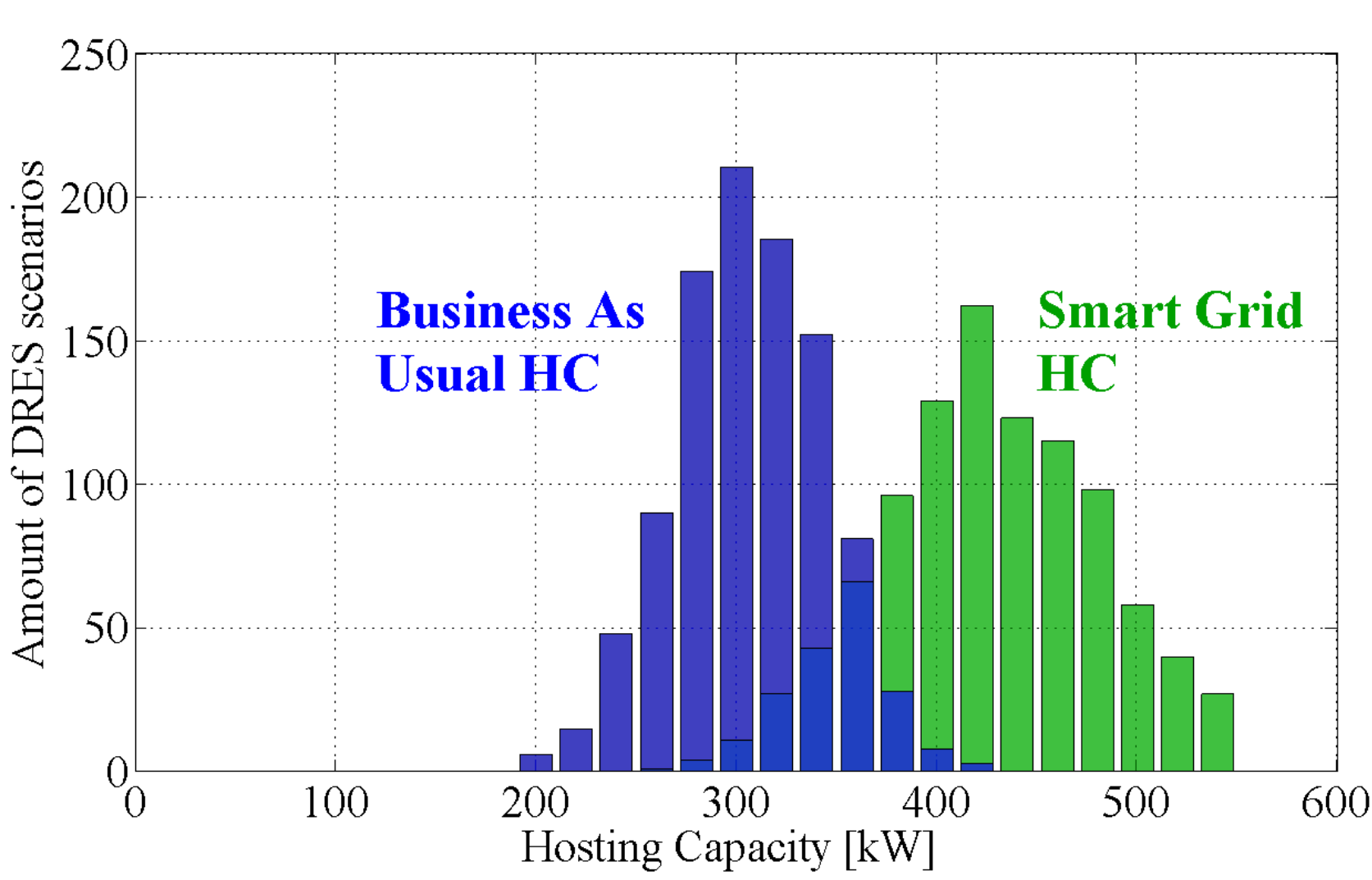
### Six Demonstration Projects

IGREENGrid includes eight DSOs currently operating **large-scale demonstrative networks** for the implementation of new technologies designed for the reliable integration of DRES in distribution grid.



### Key Performance Indicators

For the evaluation of the benefits introduced by Smart Grid technologies, IGREENGrid has adopted the procedure proposed by the **European Electricity Grid Initiative**. The evaluation method is based on the comparison between the network performance in the Business as Usual and Smart Grid scenarios.



### KPIs calculation



The performance evaluation has been carried out by simulating the demonstration projects in **different scenarios of DRES integration**.

Depending on the position and size of DRES generators, diverse performances are featured by the Smart Grid solutions.

### Conclusions

The computation of the KPIs on demonstration projects has been completed. The obtained results are currently under evaluation and valuable information about the application of Smart Grid solutions can be deduced from them.

However, the **heterogeneous** nature of the **demonstration networks** seems to be a strong limitation for the use of KPIs as a tool for performance comparison.

According to this, more significant results are expected from the cross-simulation and KPIs of Smart Grid solutions applied on **European representative networks**.