



## **Task 14 Report: Reactive power management with distributed energy resources**

Report Team: A. Altayara, D. Mende, H. Wang, D. Stock, M. Kraiczy, C. Bucher, G. Adinolfi, G. Graditi, R. Bründliger, Y. Ogasawara, E. Omine, Y. Ueda, G. Heilscher, S. Chen

# Reactive power management with DER



- **Objective:** management summary on state-of-the art, best-practices, and recommendations regarding reactive power management with the increased penetration of distributed energy resources (DERs)
  - Explore the regulatory framework in selected Task 14 member countries, highlighting diverse approaches to managing reactive power
  - Provide insights into the current state and promising prospects of reactive power management in the context of increased DER integration
  - Highlight the relevance of regulatory frameworks in supporting the effective management of reactive power
- **Target Audience:** Distribution System Operators, Regulatory Authorities, System Integrators, Equipment Manufacturers

# Reactive power management frameworks



## ➤ Overview and comparison of regulatory frameworks



Emphasis on controllable reactive power from DER with fixed grid codes.



Focus on equitable compensation for DSOs contributing reactive power, emphasizing regulatory compliance.



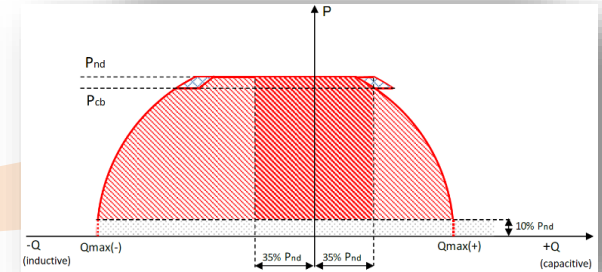
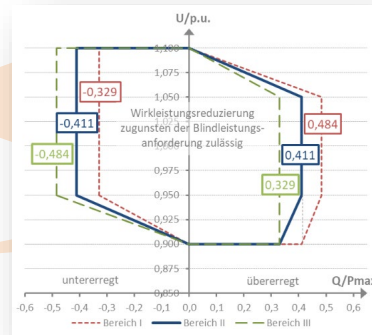
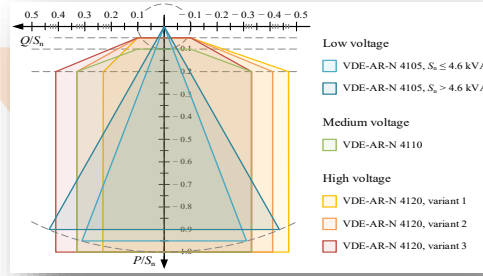
Adopts a fixed power factor control strategy.



Connection requirements are an integral part of the national grid code and market rules for the electricity market



Highlights continuous reactive power regulation for generators directly connected to the transmission grid.





- **The need for updated regulatory frameworks**
  - aligning with the evolving energy landscape and ensure the resilience and efficiency of power systems
- **Utilizing the potential of Distributed Resources**
  - Exploring Distributed Energy Resources as a potential source for reactive power services, improving the efficiency and reliability of power systems
  - Integrating Solar PV forecasting for flexible provision of reactive power
- **Collaboration between Transmission and Distribution System Operators**
  - To facilitate more effective reactive power management
  - Communication systems are increasingly gaining significance
  - By integrating of ICT: enhance coordination between TSOs and DSOs in managing reactive power