

„Overview on the German discussion of the provision of reactive power“

Presentation for the
Workshop on System Services from Wind power
in Hamburg, 26 September 2018

Transition of the power system offers different challenges on the field of system stability

- Displacement/crowding out of conventional power stations
 - Lack of ancillary services, e. g. reactive power (Q)

Behaviour of Q of the electricity network:

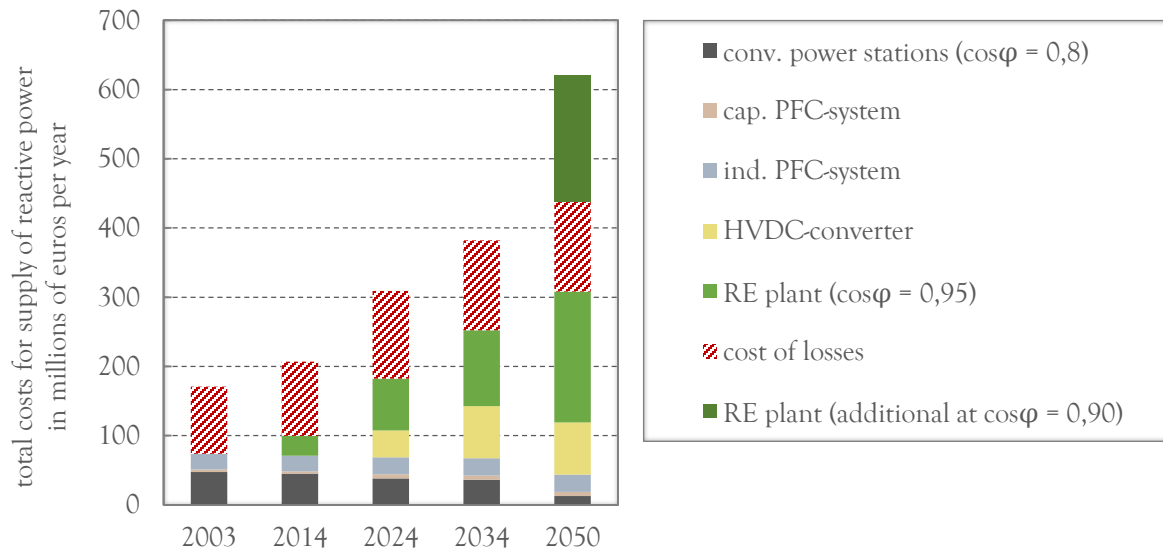
- Increasing of values in overexcited situations due to
 - grid expansion (capacitive currents)
 - Capacitive load or Lower inductive behaviour of consumer (power supplies with power electronics)
- Increasing of values in underexcited situations due to
 - higher utilisation of the grid and
 - Increasingly use of reactive power for voltage control in distribution networks

Content of the Study on reactive power for the Federal Ministry of Economic affairs and Energy (BMWi)

- Demand of reactive power in the german transmission and distribution system
 - State of the art of supply of reactive power
 - Identification of optimization potentials (e. g. use of existing potentials)
 - Discussion of cost efficiency on the basis of more transparent and market based procurement of reactive power
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- In german:
 - <https://www.bmwi.de/Redaktion/DE/Publikationen/Studien/zukuenftige-bereitstellung-von-blindleistung-und-anderen-massnahmen-fuer-die-netzsicherheit.html>
 - Short summary in english:
 - https://www.bmwi.de/Redaktion/EN/Publikationen/Studien/studie-zukuenfitge-bereitstellung-von-blindleistung-und-anderen-massnahmen-fuer-die-netzsicherheit.pdf?__blob=publicationFile&v=3

Recommendations for action

- Comprehensive competition of all measures of voltage maintaining
- It is technically better and economically more beneficial to end up with fewer, reliable, highly available sources of Q with adapted control dynamics and appropriate dimensions at the right locations
- Market-based procurement of reactive power with incentives for a careful use of reactive power in terms of providing it, but also in terms of deploying it



Regensburg Center of Energy and Resources (RCER)
Forschungsstelle für Energienetze und Energiespeicher (FENES)
Ostbayerische Technische Hochschule Regensburg
Seybothstraße 2
93053 Regensburg
Tel. 0941 / 943-9881
Fax: 0941 / 943-1424
E-Mail: [oliver.brueckl @ oth-regensburg.de](mailto:oliver.brueckl@oth-regensburg.de)

