

ÖkoFlex

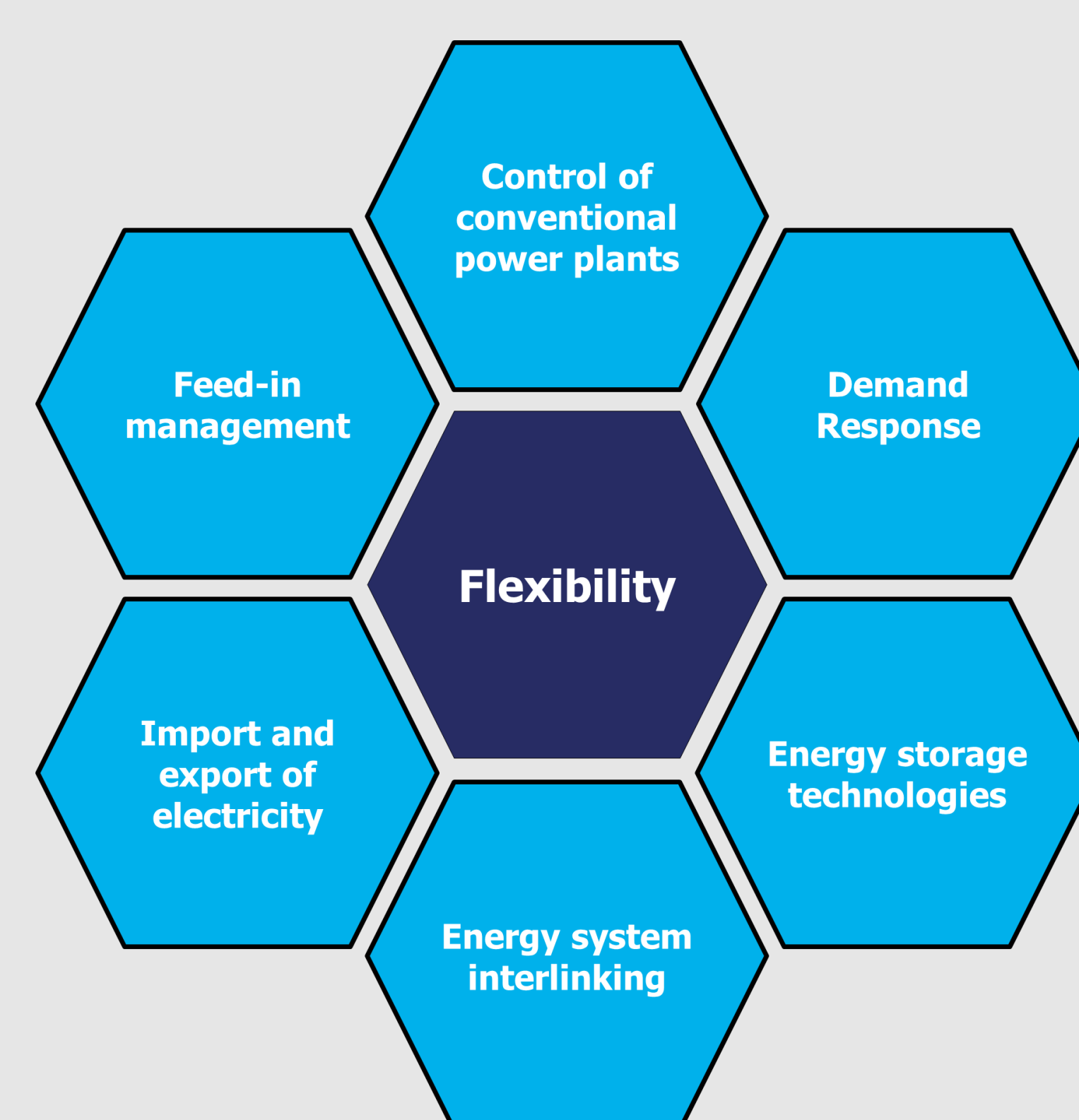
Flexibility Options for Integrating Renewable Energy and Grid Stability

Scientific problem:

- Fluctuations in electricity generation will increase in future and need to be compensated by the flexibility of other components
- The various flexibility options have very different deployment characteristics which haven't been sufficiently investigated so far
- Economic characteristics were also not quantified systematically for most options

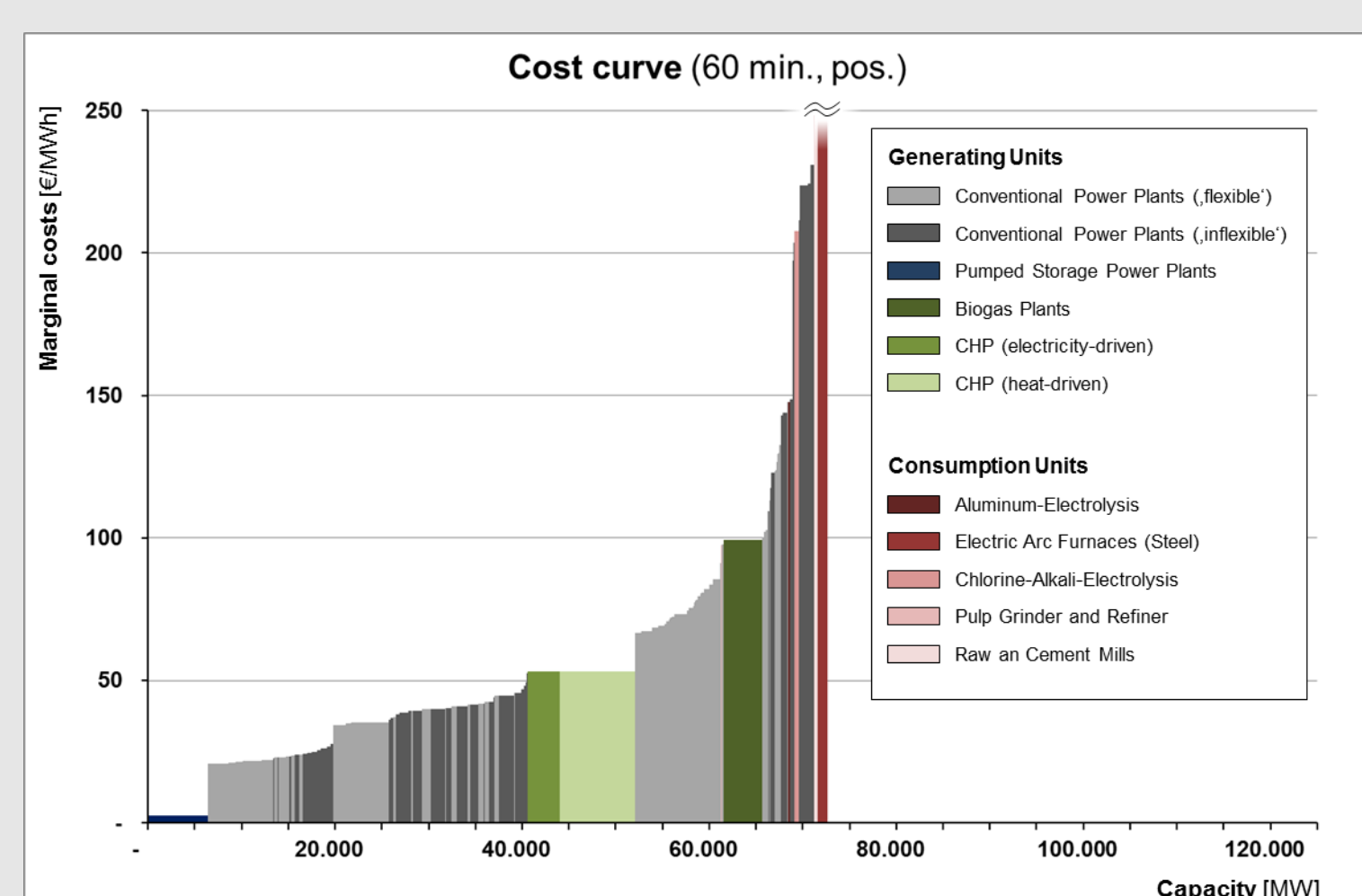
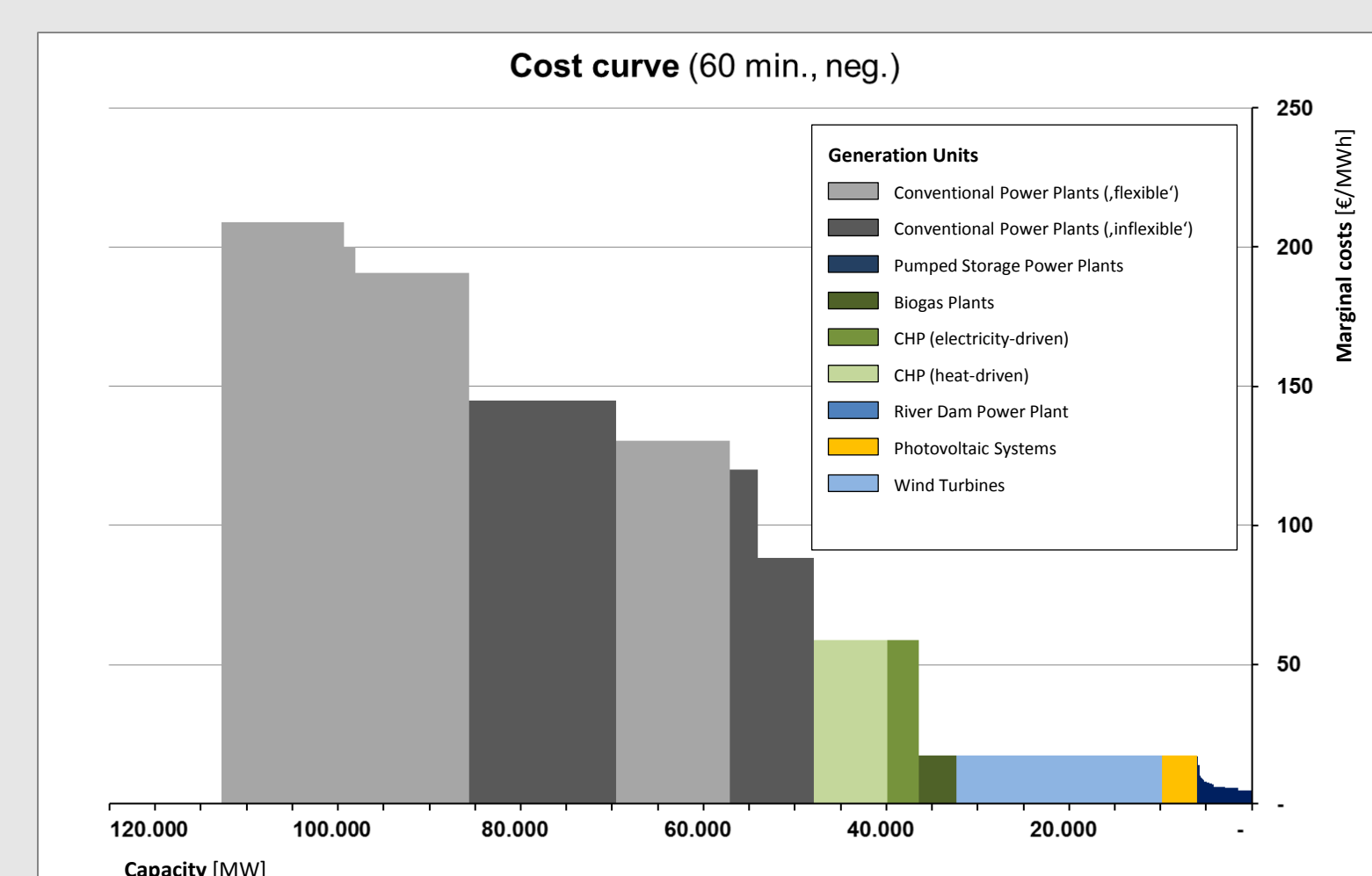
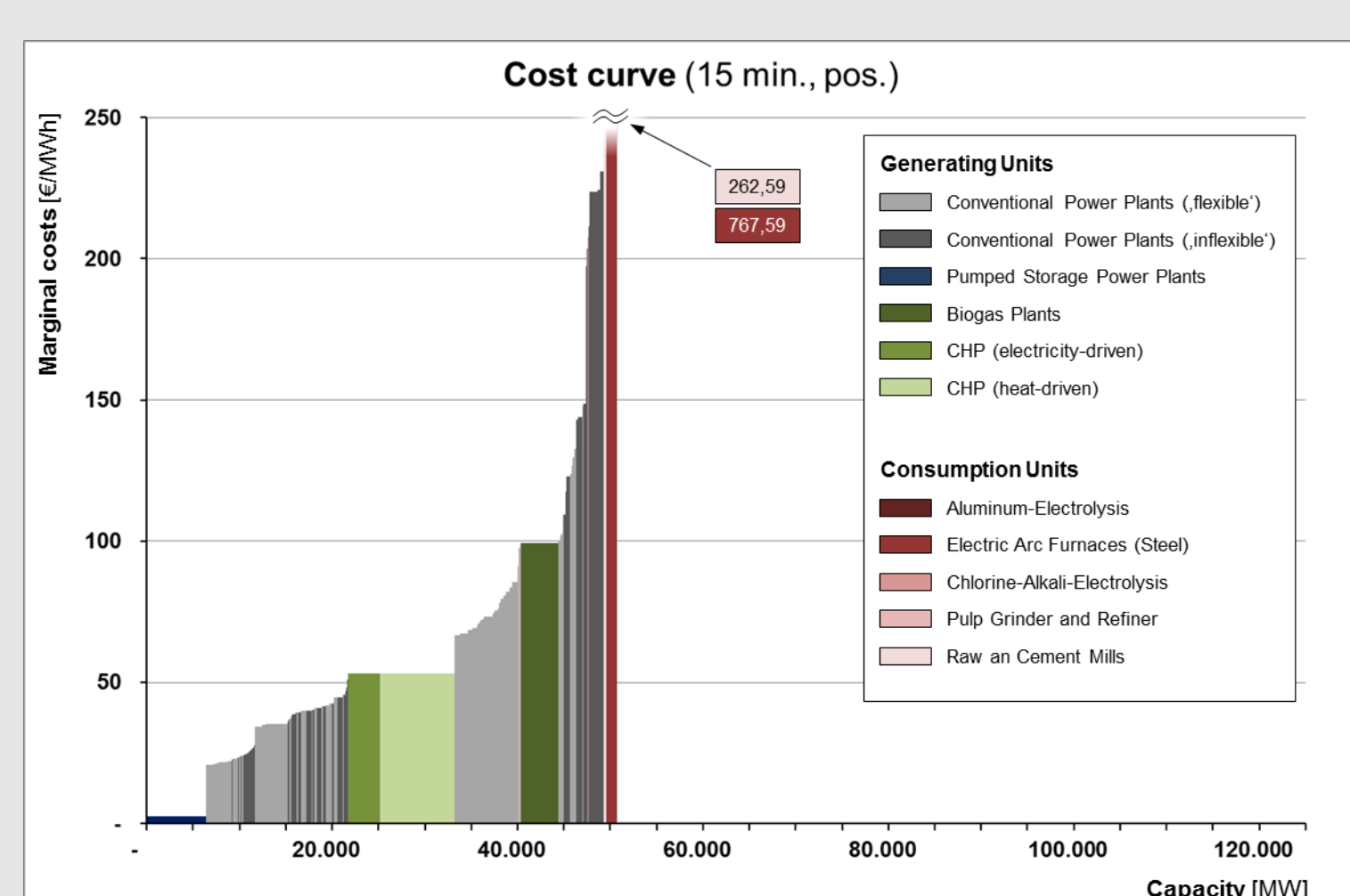
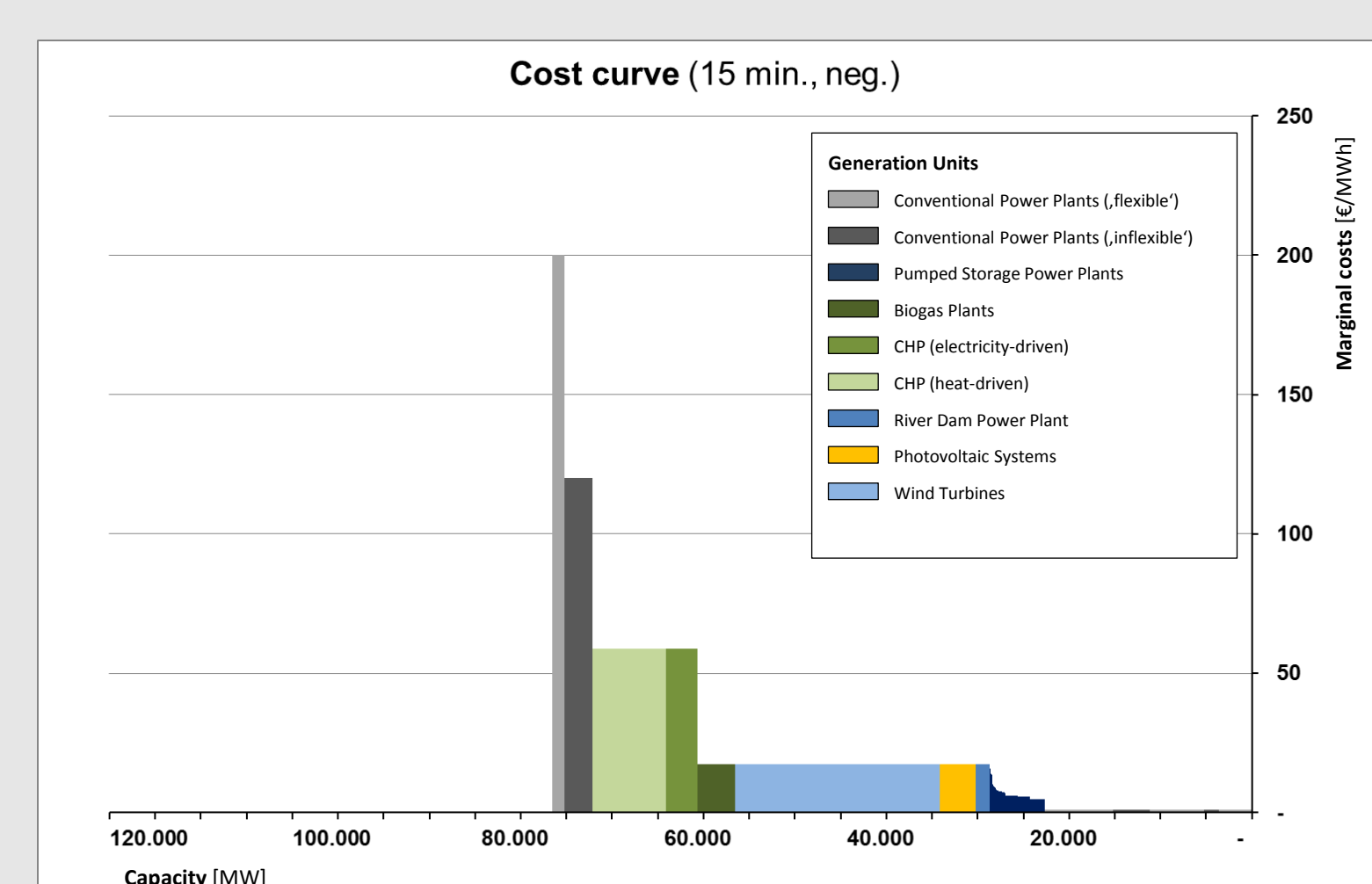
Quantification of marginal costs:

- Comprehensive consideration of *capacity-provision costs, call-off costs and deployment follow-up costs*
- Differentiated time horizons due to varying retrieval costs over time



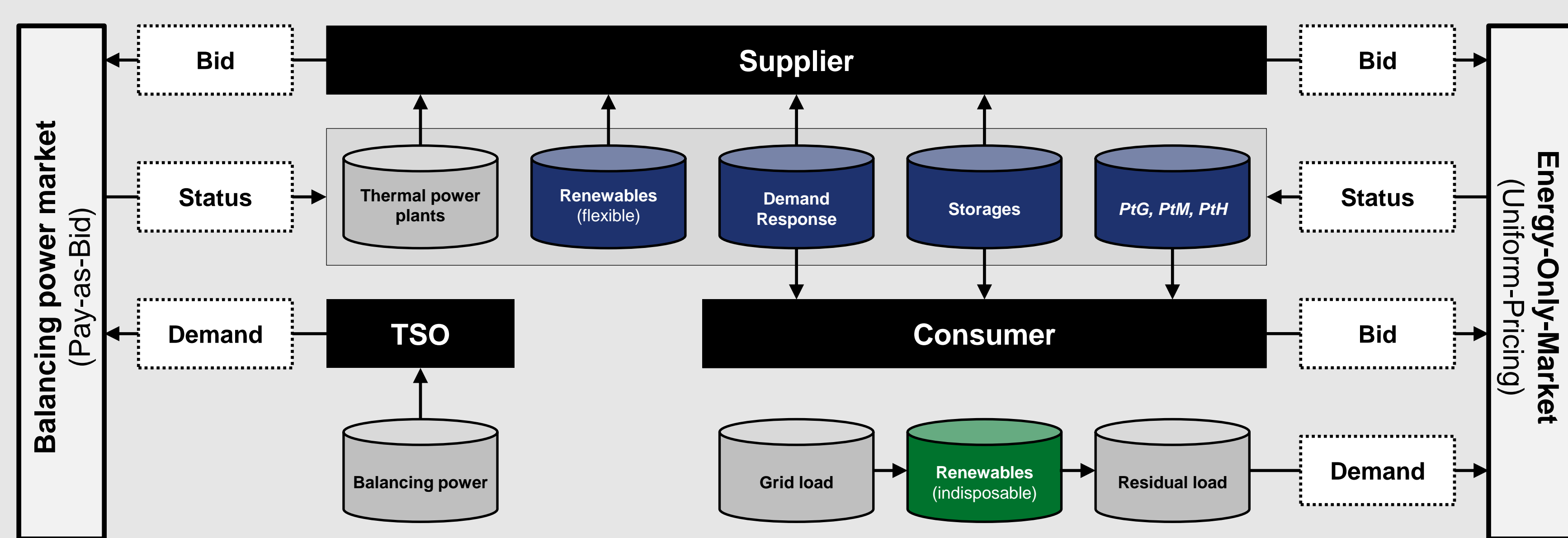
Simulation:

- Development of a Java-based electricity market simulation model
- Multi-market consideration
- Scenario analysis of various deployment of flexibility in the German electricity market



Expected research results:

- Statements about which flexibility can be used in certain market conditions
- Collecting insights into the effects of flexibilities on electricity market prices
- Assessment of flexibilities that can generate sufficient margins to cover their fixed costs
- Recommendations for the legislative promotion and expansion of flexibilities in the German electricity network



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