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EIT

FAKULTÄT FÜR ELEKTROTECHNIK
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LENA

Master's Thesis

for Ms./Mr. xx xx (123456)

Topic: Development of a Concept for Monitoring the Provision of Instantaneous Reserves

Task:

Ensuring grid stability requires increasingly flexible and rapid response mechanisms, particularly with regard to the provision of instantaneous reserve. Current clearing methods, such as those used for primary operating reserve power, are reaching their limits here, as instantaneous reserve is provided even more quickly. There is therefore a need for an improved methodology for provision that efficiently and accurately reflects the instantaneous reserve provided.

The aim of this work is to develop a concept for monitoring the provision of instantaneous reserves and to test it for various scenarios. Technical and regulatory aspects must be taken into account in the concept. In addition, a detailed differentiation must be made between regular electricity supply and the use of instantaneous reserve.

The study has to cover the following points:

- Literature research on the fundamentals of instantaneous reserve and the current German balancing power market
- Analysis of existing monitoring methods and regulations for balancing power services products
- Development of a concept that enables fast and accurate verification of the provision of instantaneous reserve and allows a differentiation between regularly generated energy and additional instantaneous reserve
- Simulation of the model in Matlab/Simulink
- Documentation and discussion of the results

Magdeburg, xx.xx.2024

Date of edition: xx.xx.2024

Date of submission: xx.xx.2024

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