

## MASTER

### Impact of the energy transition on short-circuit power a case study of the Groningen-Drenthe 110kV grid

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Department of Electrical Engineering  
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# **Impact of the energy transition on short-circuit power: a case study of the Groningen-Drenthe 110kV grid**

*Master Thesis*

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# Abstract

This paper reports the results of a graduation project on the impact of the energy transition on power quality and in particular voltage dips and rapid voltage changes. It concentrates on the effects of the implementation of load pockets in the Groningen-Drenthe high-voltage (HV) electrical grid on voltage dips and rapid voltage changes (RVC). The paper assesses the changes in short-circuit (SC) power as an indicator for the changes to these power quality phenomena through various foreseen future grid operating scenarios, most importantly the introduction of load pockets and the shift to renewable energy sources (RES). Through this assessment, key areas of interest are identified where voltage dips and rapid voltage changes are most likely to be affected and what this would mean for compliance with the grid code. It discusses several methods for mitigating decreases in SC power as a result of the implementation of load pockets.