**Title:** „Determining the required control time of inverters to provide synthetic inertia for inverter-based electrical power grids."

• You determine the necessity of inertia response of electrical power grids in 2050.

• You analyze new strategies for power electronic devices to provide synthetic inertia.

• You define a suitable power grid layout to analyze the required control time of inverter systems in terms of providing synthetic inertia.

• You define the test cases for the experimental implementation.

• You install the specified network architecture in the DLR grid lab and develop the control algorithm of the grid components via a real-time system.

• At the end, your task is the experimental implementation of the developed test cases and the evaluation as well as the summary of the results.