

ENERGY

PROMOTioN – FPGL Setup

WP16 Demonstration

Arnhem, The Netherlands

Andrew Burstein

15 August 2019

Internal use only

Flex Power Grid Lab

The Flex Power Grid Lab (FPGLab) offers unique services, related to Distributed Energy Resources (DER) and Renewable Energy Systems (RES) integration for SmartGrids and power electronics development and testing for industrial high voltage (24 kV) and power up to 1 MVA, by offering a freely programmable grid or load.

- Test objects up to 24 kV_{RMS}, 2 kV_{DC}
- DC to 10 kHz frequency range
- Continuous power up to 1 MVA (1.3 MW)
- Up to >25th harmonics
- 4 Quadrant operation
- Synchronization with other source



Key Services:

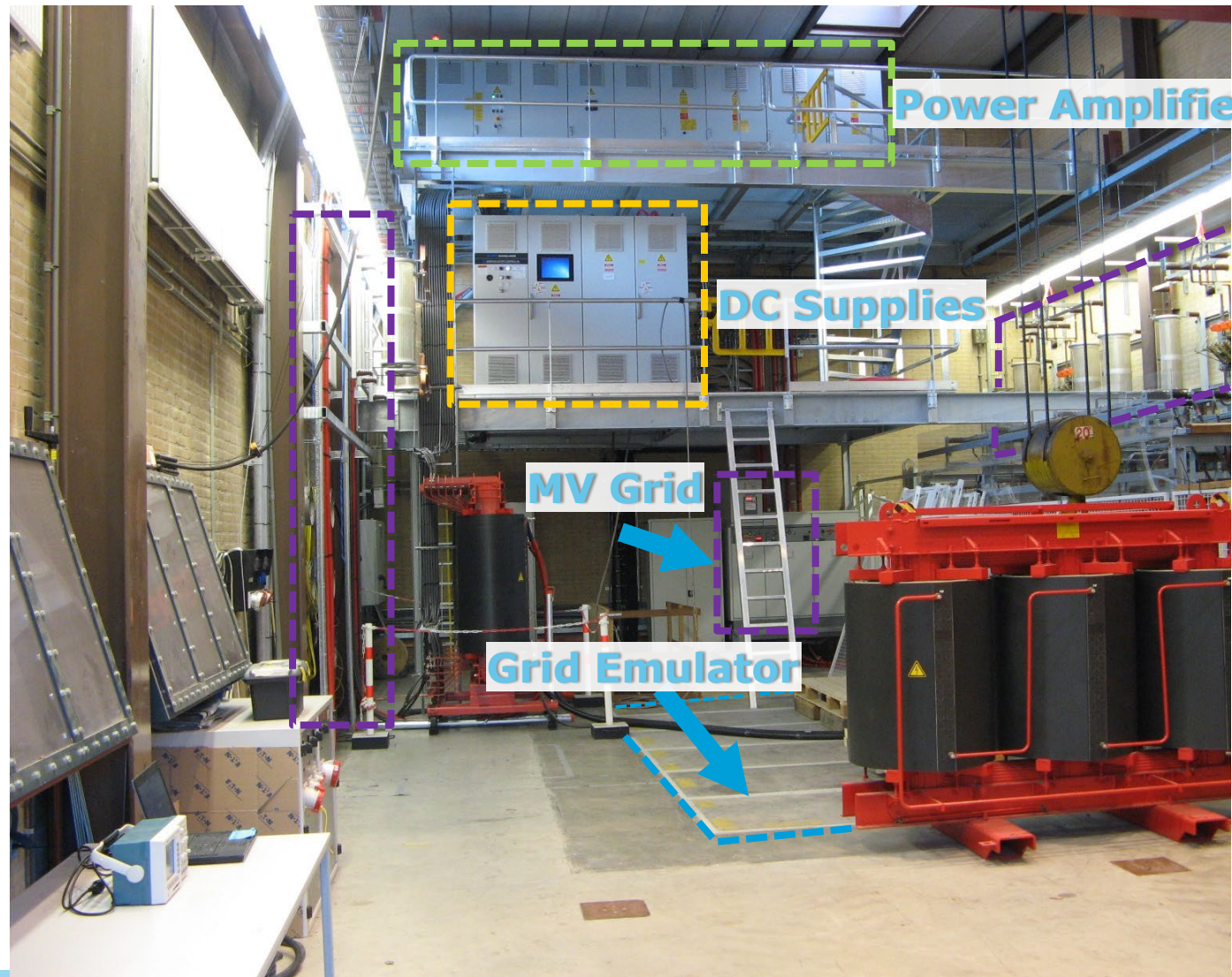
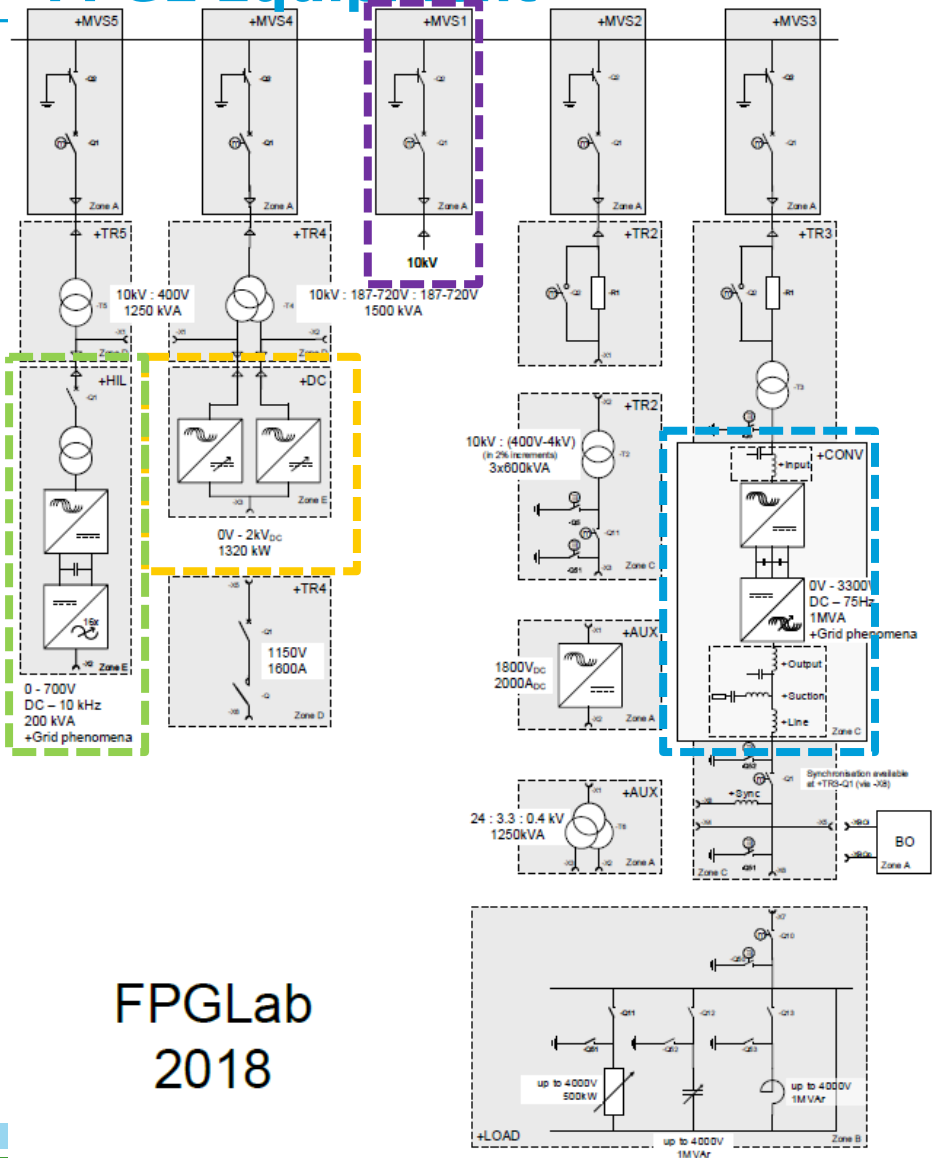
- Power Quality Testing
- Safety & Grid Code Compliance
- Model Validation
- Inverter Performance Testing (PV, BESS, etc.)
- Power and Controller Hardware in the Loop

Electrical Equipment:

- AC Grid Emulator
- DC Sources and Rectifier
- Real Time Digital Simulator
- 16 Channel High Bandwidth Power Amplifiers
- High Adaptable Transformers
- Passive Loads

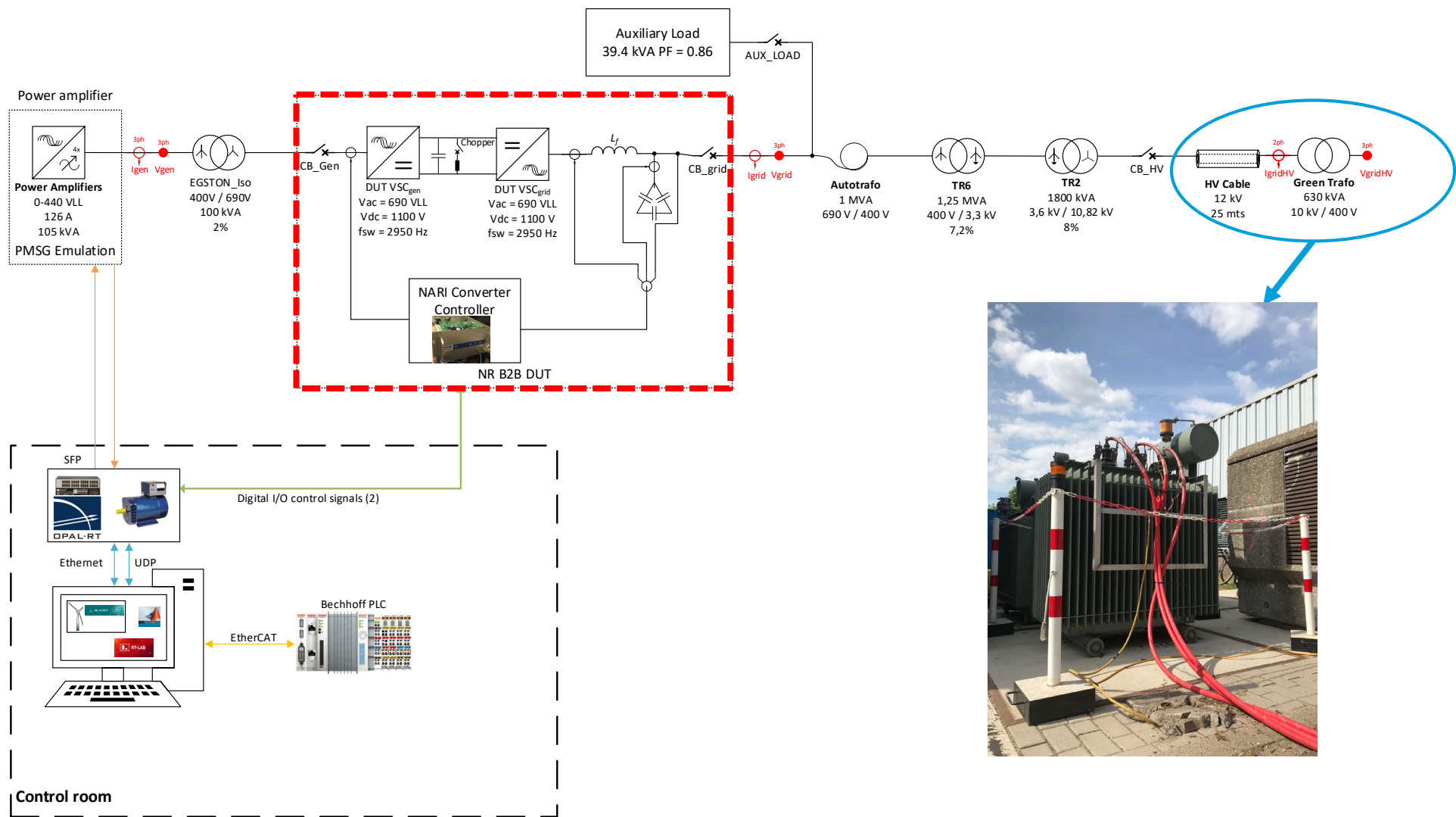
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FPGL Equipment



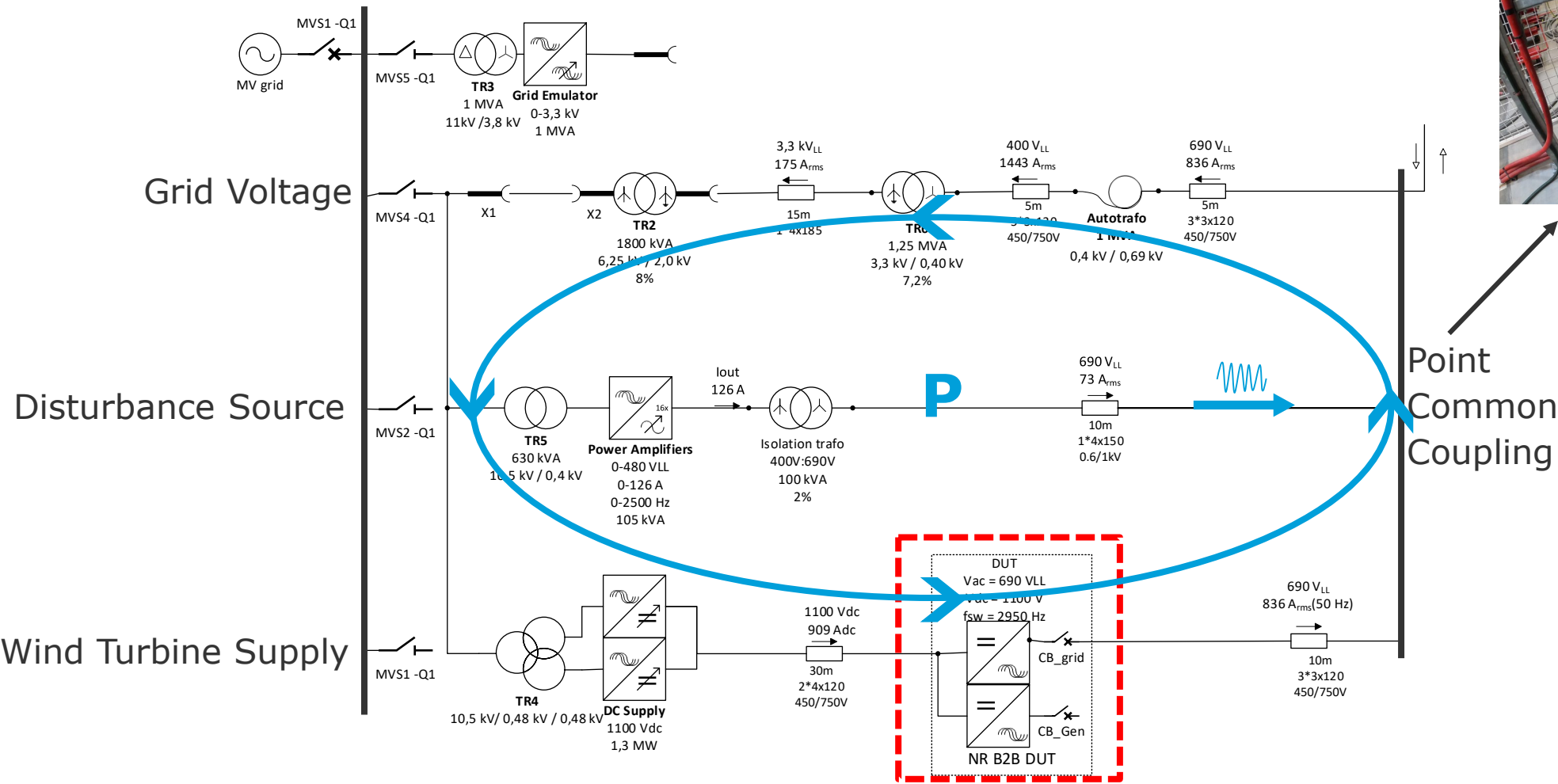
FPGLab
2018

PHIL Co-Simulation – Black Start



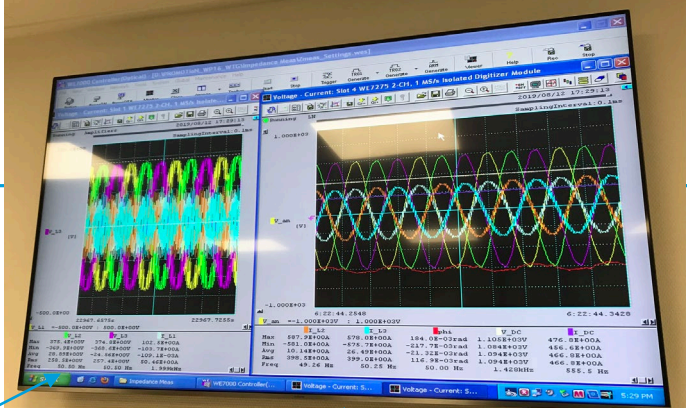
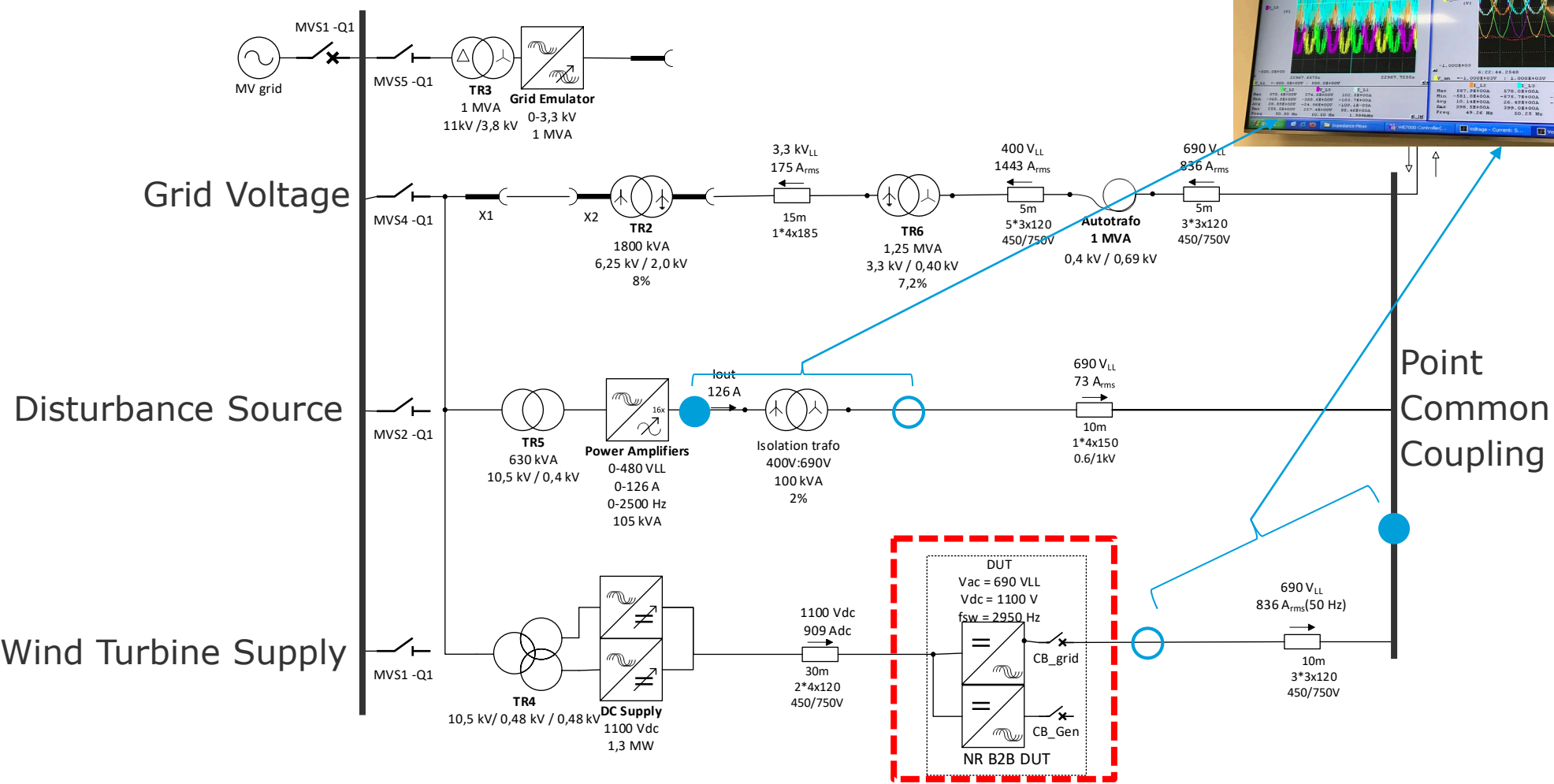
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Impedance Measurement



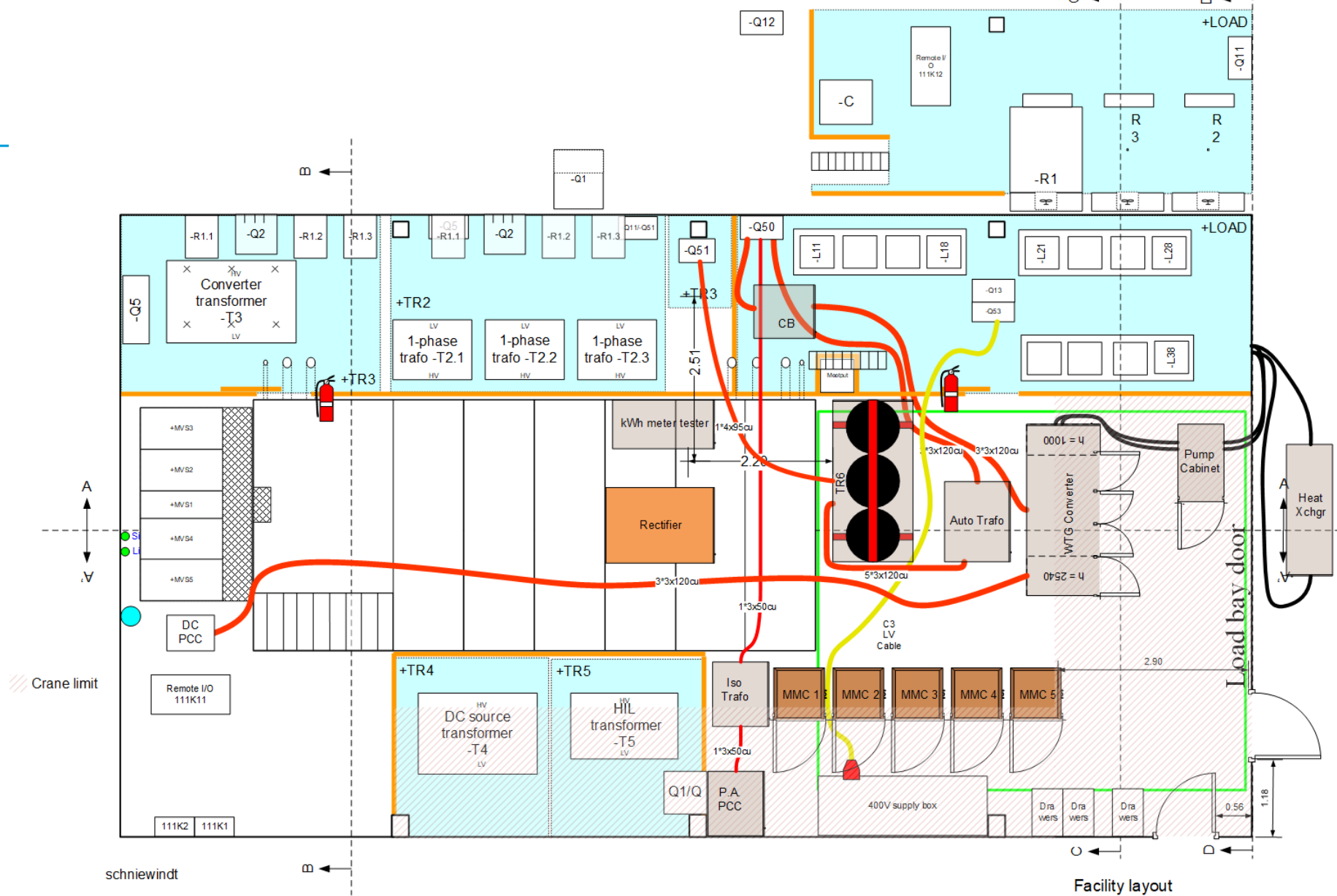
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Impedance Measurement



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Layout



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Questions

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SAFER, SMARTER, GREENER

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