With around 16,000 students and 3,800 employees, Technische Universität Braunschweig is the largest Institute of Technology in northern Germany. We are known for our strategic and performance-oriented thinking and acting, top-level research, highly committed lecturers and a successful transfer of knowledge and technologies into industry and society. We are dedicated to creating a family-friendly environment and advocate for equal opportunities.

Our campus is located in the middle of one of Europe's research hotspots, where we have established a successful working relationship—both with the more than 20 research facilities in our neighbourhood and our international partner universities.

Starting from *01.10.2024*, the elenia *Institute* at TU Braunschweig (www.tu-braunschweig.de/elenia) is looking for a

Research assistant (m/f/d) in the field of DC-systems

(full-time – fixed-term)

With around 16,000 students and 3,800 employees, the Technische Universität Braunschweig offers a range of teaching and research with excellent facilities and a personal atmosphere.
Play an active role in shaping the energy transition: "PROSECCO" (DC Protection, Security, Control and Optimization) is a European research project for the further development of the maturity level of high-voltage direct current transmission grids (HVDC grids). The overall objective of your project work is the analysis and development of protection and control systems in hybrid AC/DC grids with a focus on the application of Model-Based Systems Engineering (MBSE). You will demonstrate the benefits of this systematic, manufacturer-independent methodology in the project consortium with the design of systems in the area of grid protection and load flow control, as well as the implementation of suitable hardware demonstrators. You will pursue your questions independently in the DC systems and switchgear team and are a member of a European research consortium of the project association.
Your tasks will include the implementation of practical, interdisciplinary research projects and collaboration in teaching.

Required skills

- Ability to work in a team and professional and social commitment
- A university degree in electrical engineering, industrial engineering, electrical engineering or a comparable scientific-technical course of study is mandatory for employment as a research assistant.

Other valued skills

- Basic knowledge of system design using Model-Based Systems Engineering
- Previous knowledge in the field of HVDC components and grids
- Basic knowledge of programming environments (SysML, PSCAD, MATLAB/Simulink)
- Good written and spoken German and English skills

Our Benefits

- The opportunity to do a doctorate
- Independently organized work in a dynamic, young team
- The opportunity to actively collaborate with partners and colleagues from European research projects and fields
- The opportunity to work in the laboratory as well as for computer-aided synthesis and analysis of systems and components
- Close staff supervision and a wide range of extracurricular activities
- Depending on the assignment of tasks and fulfillment of personal requirements, payment is up to EG 13 TV-L. The position is generally suitable for part-time work, but should be filled 100% of the time.

What's more to know:

We welcome applicants of all nationalities. At the same time, we encourage people with severe disabilities to apply. Applications from severely disabled persons will be given preference if they are equally qualified. Please attach a form of evidence of your handicap to your application. We are also working on the fulfilment of the Central Equality Plan based on the Lower Saxony Equal Rights Act (*Niedersächsisches Gleichberechtigungsgesetz*—NGG) and strive to reduce under-representation in all areas and positions as defined by the NGG. Therefore, applications from *women* are particularly welcome in this case.

The personal data will be stored for the purpose of processing the application. By submitting your application, you agree that your data may be stored and processed electronically for application purposes in compliance with the provisions of data protection law. Further information on data protection can be found in our data protection regulations at https://www.tu-braunschweig.de/datenschutzerklaerung-bewerbungen . Application costs cannot be reimbursed.

Closing date:

05.04.2024

Are you interested?

Please send your complete application (comprising a motivation letter, a CV and relevant certificates) preferably via email to Patrick Vieth (p.vieth@tu-braunschweig.de), indicating the reference to this specific vacancy.

ProSecCO

DC Protection, Security, Control and Optimisation

Project Overview

Funded by: European Commission

Project partners: TU Braunschweig, KU Leuven, TU Delft, TenneT, RTE, and more

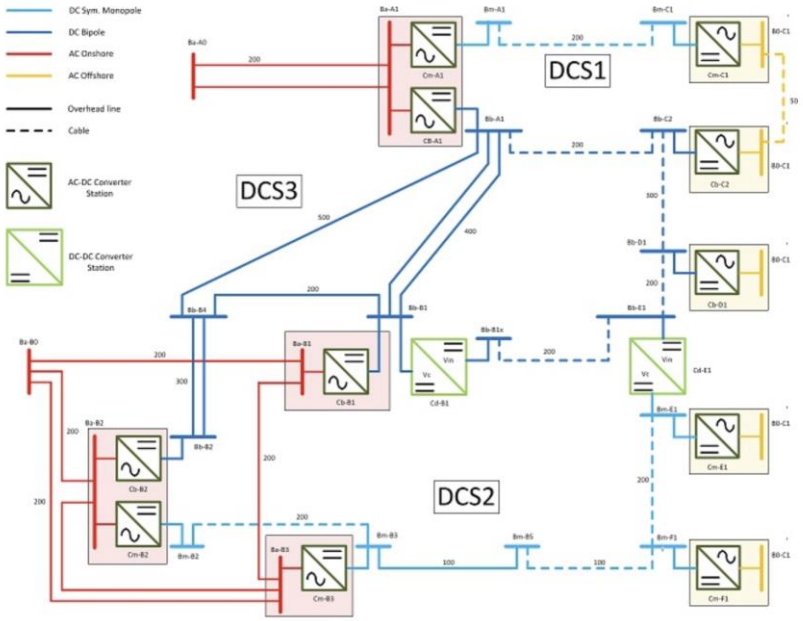
Project duration: 4 years

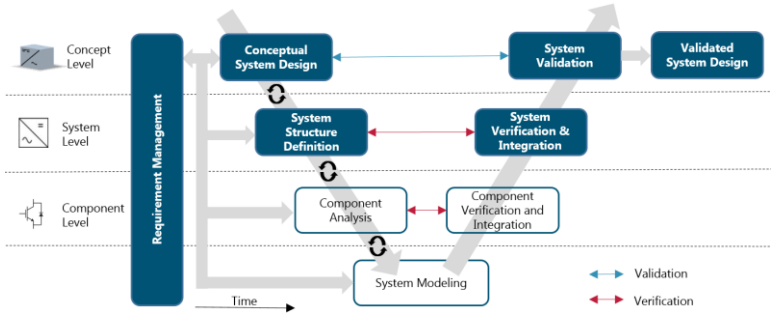
Project Aims

- Innovation in grid protection near HVDC converters and congestion management for hybrid AC/DC grids.
- Model-Based Systems Engineering (MBSE) as a consistent and wholistic approach to advance research.

Contribution from elenia

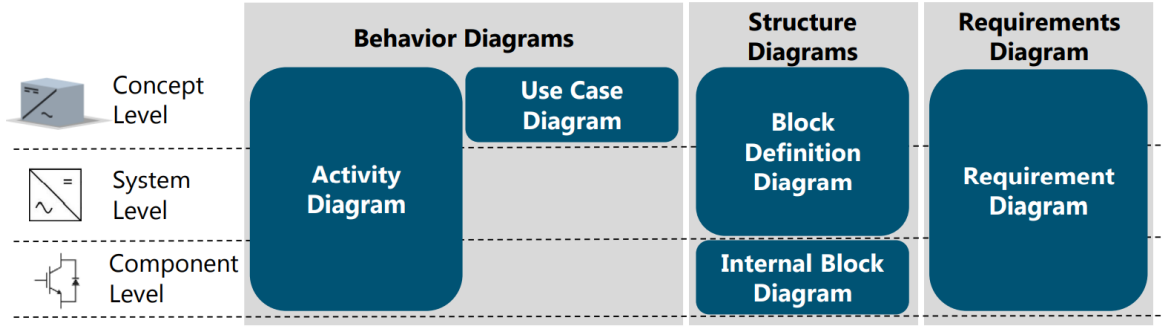
- Application of MBSE for requirements engineering and functional modelling (SysML) of HVDC grids and protection systems.
- Evaluate the MBSE approach for the validation of protection principles with a laboratory-scale HVDC demonstrator.



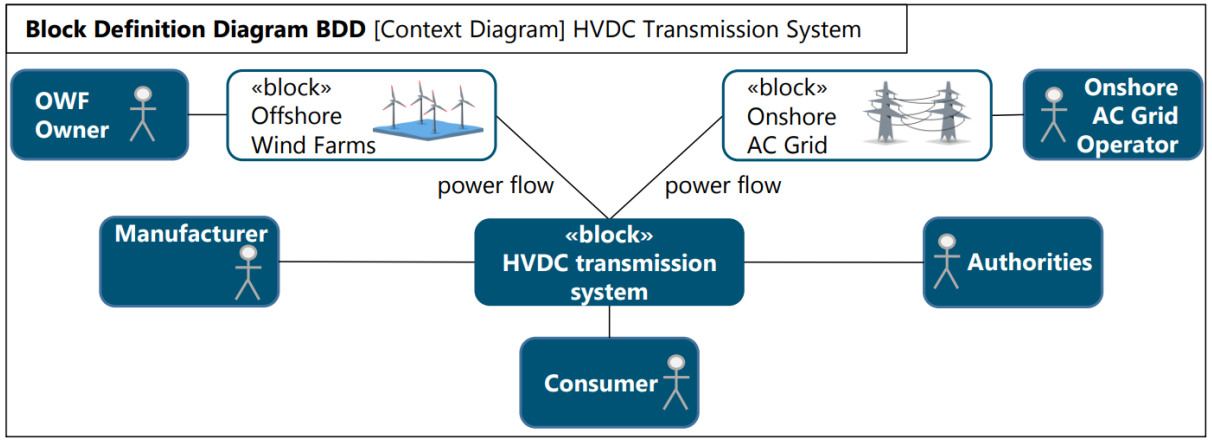


Protection Systems in DC and AC Systems – Holistic Approach

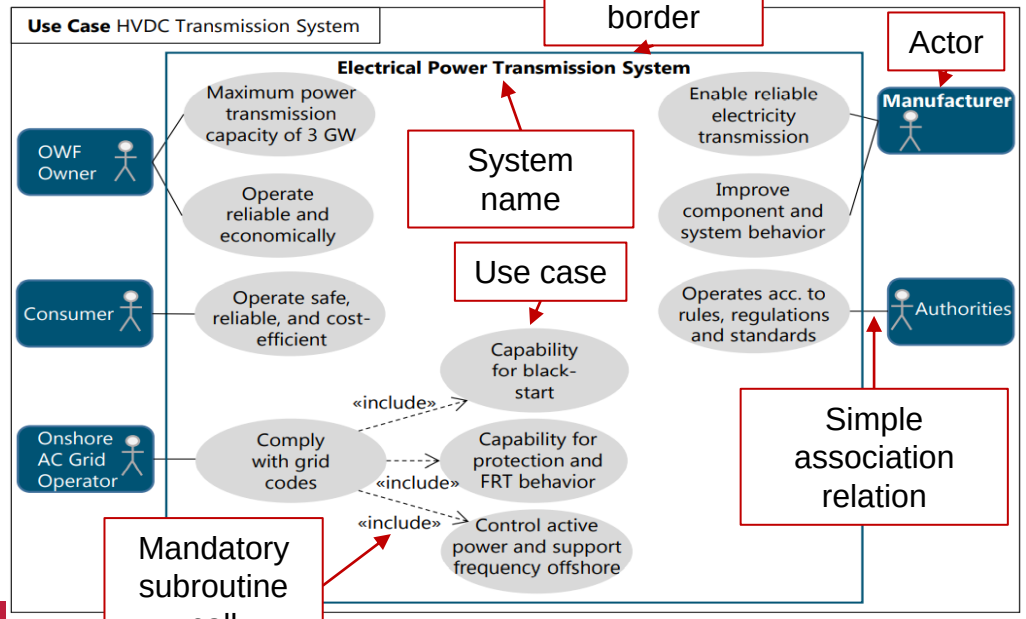
Model-Based Systems Engineering



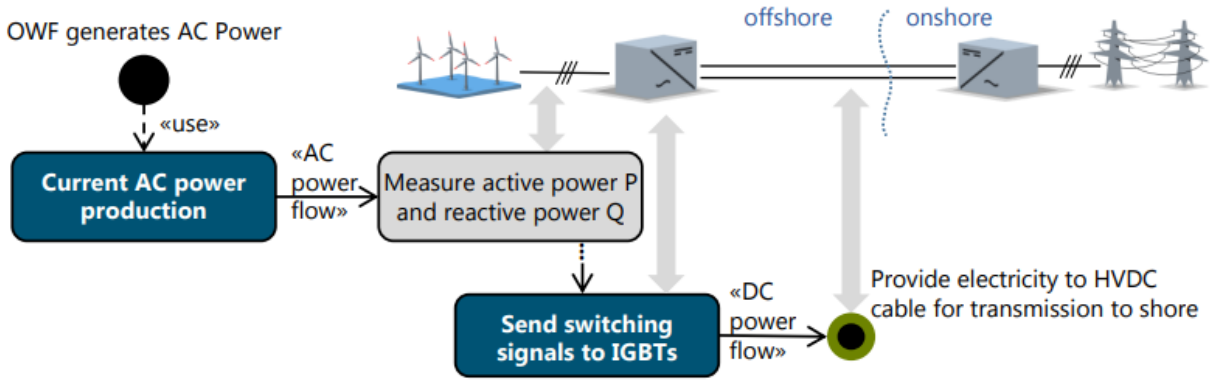
Context Diagram



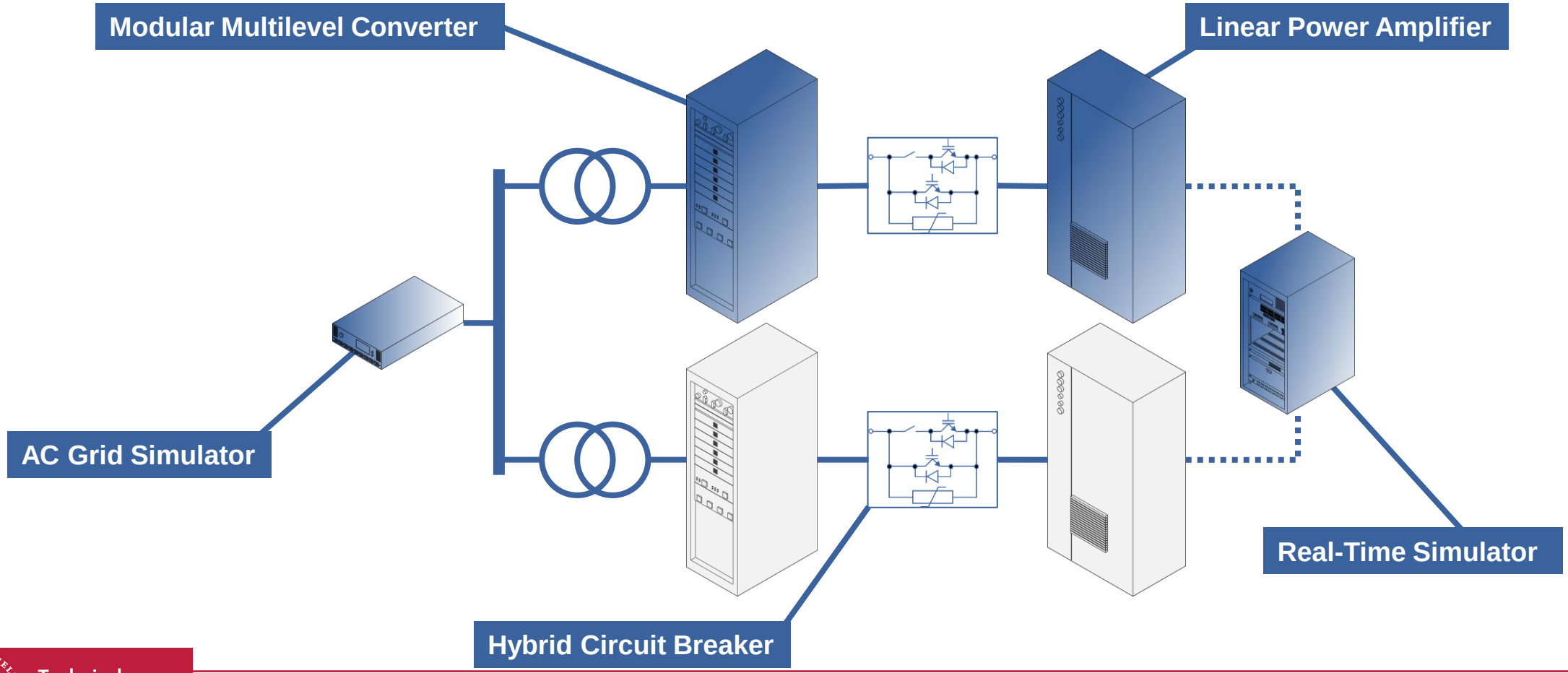
Use Case Diagram



Activity Diagram



Laboratory-Scale HVDC System Demonstrator



Laboratory Environment