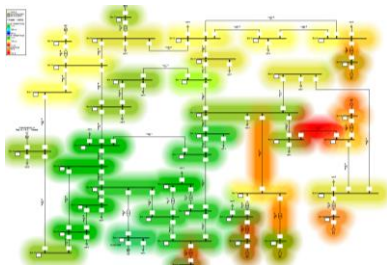


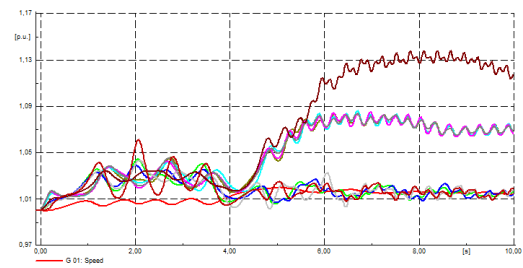
# Internship for dynamical modeling

## Context

ELIA is intensively using dynamical RMS simulation tools to assess the security for the Belgian transmission system. The RMS simulations are performed using standard industrial software in which a detailed static and dynamical model of the European Power System is implemented including not only the transmission system (i.e. lines, transformers, busers...) but also detailed model of the generation units and their control system. ELIA continuously maintains this simulation process and reference models by improving its quality though comparison with measures and manufacturer data sheets.



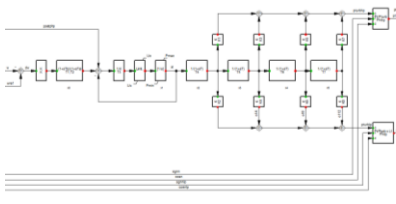
Figuur 1 : Representation of a transmission power system.



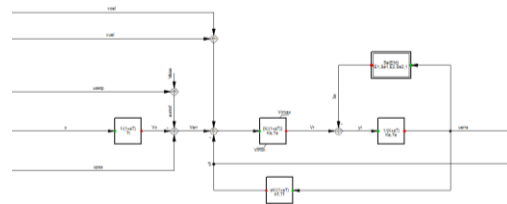
Figuur 2 : Example of an RMS simulation results .

## Goal

The trainee will be supporting ELIA in the maintenance and tuning of the model and of the simulation process though the use of advanced simulation platforms such as Eurostag, Digsilent and Matlab Simulink. The trainee will be supported by an expert and will work together under his supervision to deliver the expected results. He will have the occasion to discover the software and their usage in the challenging world of the European-wide power systems simulation.



Figuur 3 : Example of transfer function of a steam turbine prime mover.



Figuur 4 : Example transfer function of an AVR

## Pre-requisites

Basic knowledge and interest in electrical power system. Knowledge of the basis of control systems and linear dynamical modelling (e.g. transfer functions in the Laplace domain..), of simulation tools (e.g. Matlab Simulink, Digsilent, Simulink) and of electrical machines.

## Duration and place

The duration of the stage is of at least 3 months. The trainee will be working in Elia Schaerbeek, Avenue de Vilvorde 126 Vilvoordse laan , 1000 Bruxelles / Brussel