Project title	Freedyn and wind turbine system simulation
Project number	TG3-21
Organisation	Chalmers University of Technology, Applied Mechanics
Project leader	Håkan Johansson
Other participants	None
Report for	2014-10-01 – 2015-09-30
Participating companies	None

Project description

To carry out system simulations and to support other SWPTC projects, a framework for such a tool called FreeDyn has been developed in earlier TG3-1 project. Now, the work is directed towards filling this framework with actual components models, which requires additional developments. This project focuses on the drivetrain component and the control system To support verification and testing of the code, a Matlab version of FreeDyn is to be developed.

Results

Drive train model and a control model was implemented. A Matlab model for wind turbine simulation was developed.

Fulfilment of SWPTC's goals

The project addresses the common goal of the SWTPC to build up knowledge on wind turbine systems by better understanding of system simulations which are central tools for the understanding and analysis of wind turbines. A wind turbine is not specific by its components per se, but rather how these components interact to constitute a complete wind turbine. Hence, system simulation is key to predict how a specific component affect the whole turbine, and how the turbine affect the specific component.

Deviations from project plan

The implementations in FreeDyn has not undergone the more careful testing that should be done if to be put in a public release.

Publications

A draft for FreeDyn Appendix regarding co-rotational formulation for beam elements has been written, but is not published.

External activities

No external activities has been undertaken.