



Innovative Tools for Offshore Wind and DC Grids

Deliverable 3.5 – Work Package 3

Feasible implementable approaches to modelling dynamic converter interactions with the large-scale AC system and wind farms

WP 3 Leader: KU Leuven

Website: <https://innoDC.org>

Introduction

Work Package 3 focuses on the topic of Hybrid AC/DC grids and looks at the interactions between AC & DC grids. This document summarizes the work carried out by the Work Package researchers and the results obtained to achieve the target, Deliverable 3.5.

Deliverable 3.5

The topic of the Deliverable is *Feasible implementable approaches to modelling dynamic converter interactions with the large-scale AC system and wind farms*, and the delivery format is set as 'other'. For this deliverable, the focus is on the different feasible and implementable approaches that could be used to analyze converter interactions for studies on large-scale AC systems integrating wind farms. The different approaches are based on the type of study and the time-frame of the interactions. The research outcomes on the feasible and implementable approaches are presented in these three videos and one presentation:

- (1) **Vaishally Bhardwaj – “Feasible implementable approaches for reliable AC/DC grid operation”.**

Video link: <https://www.youtube.com/watch?v=JMr3PMWj9D0>

- (2) **Emily Maggioli – “Generic wind generator type 4 and protection studies”.**

Video link: <https://www.youtube.com/watch?v=l1VuXSHufhA>

- (3) **Saman Dadjo Tavakoli – “Analytical Tools for Interaction Assessment of VSC-HVDC Systems”.**

Video link: <https://www.youtube.com/watch?v=lhrBpFtlI0g>

- (4) **Nathalia Campos – “Stability studies using EMT and RMS models of VSC converters”**

Presentation link: <https://innodc.org/wp-content/uploads/2020/08/StabilityStudiesUsingEMTandRMSmodelsofVSCconverters.pdf>

Work package members

Institution	Early Stage Researcher (ESR)	Supervisor(s)
Cardiff University	Wei Liu	Jun Liang, Carlos Ugalde Loo
Elia System Operator KU Leuven	Nathalia Campos	Fortunato Villella, Johan Maricq, Olivier Bronckart, Jef Beerten
KU Leuven	Vaishally Bhardwaj	Dirk Van Hertem, Hakan Ergun
Universitat Politècnica de Catalunya	Saman Dadjo Tavakoli	Eduardo Prieto, Oriol Gomis
Univerisdade do Porto	Emily Maggioli	Helder Leite, Adriano Carvalho

Delivery deadline: 31 August 2020.