

Interactive comment on “Field-Test of Wind Turbine by Voltage Source Converter” by Nicolás Espinoza and Ola Carlson

H. Polinder (Referee)

h.polinder@tudelft.nl

Received and published: 14 July 2018

This paper presents test results of new method to test if a wind turbine meets the grid codes using a voltage source converter. What I appreciate very much is that this paper does not report on more simulations (as many other publications do), but on a test setup that has been built to test wind turbines. Building a voltage source converter with a power level of 8 MW and controlling it with such dynamics that it can simulate grid faults is a huge engineering job. This setup makes it possible to do lots of other tests that the current test setups using voltage dividers cannot do.

The authors presented this idea in earlier publications. This paper presents test results that show the equipment works.

C1

For me, the most important question is: what is the scientific contribution of this paper? The authors indicate the development of testing technology is necessary for further integration of renewables. Maybe, it helps if the authors explain what makes this converter different from a standard converter. I would appreciate a paper that describes the concept, the design, the implementation and the testing together more; this paper just shows extensively the VSC works, and that could be done shorter.

I have a number of questions/comments:

1 More than half of the paper presents test results: measurements of voltages, currents and powers under different circumstances. Can the test of fig 5 be omitted because it does not add anything to fig 6?

2 Doing a frequency scan is something that is possible with a VSC. However, why is that useful? What can we do with the results?

3 p9, line 1, I think the ramp is 12.5 pu/s instead of 0.0125 pu/s. Is that correct?

4 I miss a reference to what seems to be a similar paper: C Saniter; J Janning, "Test Bench for Grid Code Simulations for Multi-MW Wind Turbines, Design and Control", IEEE Transactions on Power Electronics, 2008, Volume: 23, Pages: 1707 - 1715. What does the paper under review add to this one?

5 There are too many language mistakes. A number of examples:

p3 line 4: In every grid code it is specified => Every grid code specifies

p3 line 6: In fig. 1 is shown => Fig. 1 shows

p4 line 7: dependent of => dependent on

p4 line 24: can be of used to obtain => can be used to obtain

p7 line 10-13: unclear sentence

p9 line 14: as later see =>??

C2

p12 line 3: signal of the wind turbine converter are => signals of the wind turbine converter are

p12 line 5: have being kept => have been kept

p12 line 7: dip => deep

Interactive comment on Wind Energ. Sci. Discuss., <https://doi.org/10.5194/wes-2018-37>, 2018.